

A Multicentric Observational Study to Analyze Indications, Complications, and Histopathological Correlation in Hysterectomies

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Abstract

Aim: Of this study was to analyze indications, complications, and co-relation of pre-operative diagnosis with a final histopathological report in teaching and non-teaching hospitals so that policies can be made to regulate unnecessary hysterectomies.

Materials and Methods: This was an observational prospective study for 5 years, from January 1st, 2015, to December 31st, 2019. It was conducted at four hospitals, two medical colleges, that is, Mahatma Gandhi Institute of Medical Sciences, Sevagram, Wardha (MGIMS) and Jawaharlal Nehru Medical College, Sawangi, Wardha (JNMC), and two big private hospitals, that is, Sushrut hospital and Mogre hospital in Wardha city.

Results: The total number of hysterectomies done in all four hospitals during the study period of 5 years was 5444. Most of the hysterectomies were done in patients of the age group 41–45 years in all four hospitals. The most common type of hysterectomy performed in MGIMS, JNMC, and Sushrut Hospital was total abdominal hysterectomy. However, in Mogre Hospital most common type of hysterectomy performed was a non-descent vaginal hysterectomy. The most common indication of hysterectomy in JNMC, Sushrut Hospital, and Mogre Hospital was uterine fibroid. However, in MGIMS most common indication of hysterectomy was uterovaginal prolapse. The most common histopathological diagnosis was leiomyoma in all the four hospitals. Wound infection was the most common complication in all four hospitals.

Conclusion: Hysterectomy is associated with many complications during and after surgery. Therefore, all the hysterectomies should be reported to meticulously evaluate the indication of hysterectomy to improve the quality of health services.

Key words: Complications, Hysterectomy, Policies

INTRODUCTION

Hysterectomy is the most commonly performed non-obstetric gynecological surgery.^[1] It involves the removal of the uterus with or without the removal of adnexa. It is done for various benign and malignant diseases of the

genital tract. Common indications for hysterectomy are uterine fibroid, adenomyosis, dysfunctional uterine bleeding (DUB), endometriosis, chronic pelvic inflammatory disease, and uterovaginal prolapse.^[2] It can be done by abdominal route or vaginal route or through abdominal ports with the help of a laparoscope and the approach depends upon the indication of surgery, the nature of the disease, the patient's characteristics, and the surgeon's preference. Sometimes hysterectomy also includes removal of ovaries. The lifetime risk of hysterectomy ranges from 30% to 40%.^[3] The rate of hysterectomy varies with geographic region, patient-related factors, gynecologist-related factors, and availability of alternative methods for benign uterine pathologies.

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Hysterectomy is the definitive treatment for many conditions but it is not risk-free. The rate of various complications associated with hysterectomy has been reported in the range of 0.5–43%.^[4] It is associated with risks of surgical and anesthesia-related complications and if ovaries are also removed, it leads to iatrogenic menopause. Studies have shown that even if ovaries are preserved, total abdominal hysterectomy accelerates ovarian dysfunction and women are at risk of early menopause.^[5,6] Women who experience premature menopause have an increased risk of cardiovascular diseases, neurological diseases, psychiatric diseases, osteoporosis, and sexual dysfunctions.

Many studies have found that even after the emergence of newer effective conservative methods for benign conditions, the rate of hysterectomy is increasing even in young age women for benign conditions. Hence, the audit is required to regulate unnecessary hysterectomies. The aim of this study was to analyze indications, complications, and co-relation of pre-operative diagnosis with final histopathological reports in teaching and non-teaching hospitals so that policies can be made to regulate unnecessary hysterectomies.

MATERIAL AND METHODS

An observational prospective study for 5 years, from January 1st, 2015, to December 31st, 2019, was conducted in four hospitals, two medical colleges, that is, Mahatma Gandhi Institute of Medical Sciences, Sevagram, Wardha (MGIMS) and Jawaharlal Nehru Medical College, Sawangi, Wardha (JNMC) and two big private hospitals, i.e., Sushrut Hospital and Mogre Hospital in Wardha city. These hospitals were selected as a maximum number of hysterectomies were being done in these hospitals.

A meeting of all the four hospital's in-charges was conducted. Moreover, as per the decisions taken in the meeting and after obtaining institutional ethics committee approval-

- We had created a confidential media group in which sociodemographic details, indications, and route of hysterectomy cases were shared with the picture of the hysterectomies specimen and histopathological report
- A master chart was prepared and the data entry was done by the respective hospital's in-charge.

RESULTS AND OBSERVATIONS

The total number of hysterectomies done during the study period of 5 years in MGIMS was 2394, in JNMC was 2091, in Sushrut Hospital was 917, and in Mogre Hospital was 42.

Table 1: Year-wise distribution

Year	Mahatma Gandhi Institute of Medical Sciences	Jawaharlal Nehru Medical College	Sushrut Hospital	Mogre Hospital
2015	487	397	168	8
2016	422	432	192	7
2017	529	429	172	8
2018	511	452	204	10
2019	445	381	181	9
Total	2394	2091	917	42

Table 2: Age-wise distribution

Age group	Mahatma Gandhi Institute of Medical Sciences	Jawaharlal Nehru Medical College	Sushrut Hospital	Mogre Hospital
35–40 (%)	21 (0.88)	20 (0.96)	201 (21.92)	2 (4.76)
41–45 (%)	1007 (42.06)	1145 (54.76)	467 (50.93)	21 (50)
45–50 (%)	892 (37.26)	607 (29.03)	163 (17.78)	11 (26.19)
>50 (%)	474 (19.80)	319 (15.26)	86 (9.38)	8 (19.05)
Total	2394	2091	917	42

Table 3: Distribution according to socioeconomic status

Socioeconomic status	Mahatma Gandhi Institute of Medical Sciences	Jawaharlal Nehru Medical College	Sushrut Hospital	Mogre Hospital
Lower (%)	1463 (61.11)	43 (2.06)	6 (0.65)	1 (2.38)
Lower middle (%)	502 (20.97)	439 (20.99)	50 (5.45)	2 (4.76)
Middle (%)	215 (8.98)	1338 (63.99)	596 (64.99)	22 (52.38)
Upper middle (%)	119 (4.97)	146 (6.98)	192 (20.94)	12 (28.57)
Upper (%)	95 (3.97)	125 (5.98)	73 (7.96)	5 (11.90)
Total	2394	2091	917	42

Table 4: Distribution according to type of hysterectomy

Type of hysterectomy	Mahatma Gandhi Institute of Medical Sciences	Jawaharlal Nehru Medical College	Sushrut Hospital	Mogre Hospital
TAH (%)	947 (39.56)	1199 (57.34)	459 (50.05)	8 (19.04)
VH (%)	689 (28.78)	495 (23.67)	80 (8.72)	11 (26.19)
TLH/LAVH (%)	72 (3.01)	397 (18.99)	220 (23.99)	3 (7.14)
NDVH (%)	597 (24.94)	0	158 (17.23)	20 (47.62)
Wertheims	89 (3.72)	0	0	0
Total	2394	2091	917	42

TAH: Total abdominal hysterectomy, VH: Vaginal hysterectomy, TLH/LAVH: Total laparoscopic hysterectomy/laparoscopy-assisted vaginal hysterectomy, NDVH: Non-descent vaginal hysterectomy

Hence, the total number of hysterectomies done in all four hospitals during the study period of 5 years was 5444 [Table 1].

Table 5: Distribution according to indication of hysterectomy

Indication	Mahatma Gandhi Institute of Medical Sciences	Jawaharlal Nehru Medical College	Sushrut Hospital	Mogre Hospital
Fibroid (%)	684 (28.57)	1054 (50.41)	459 (50.05)	21 (50.00)
Adenomyosis (%)	480 (20.05)	236 (11.29)	89 (9.70)	2 (4.76)
DUB (%)	132 (5.51)	242 (11.57)	183 (19.96)	3 (7.14)
Chronic PID (%)	22 (0.92)	8 (0.38)	28 (3.05)	0
Endometrial polyp (%)	6 (0.25)	2 (0.09)	17 (1.85)	0
Post-menopausal bleeding (%)	7 (0.29)	1 (0.05)	18 (1.96)	1 (2.38)
Ovarian cyst (%)	58 (2.42)	53 (2.53)	38 (4.14)	4 (9.52)
Endometrial hyperplasia (%)	8 (0.33)	0	5 (0.54)	0
UV prolapse (%)	689 (28.78)	495 (23.67)	80 (8.72)	11 (2.62)
Ca cervix (%)	53 (2.21)	0	0	0
Ca ovary (%)	219 (9.15)	0	0	0
Ca endometrium (%)	36 (1.50)	0	0	0
Total	2394	2091	917	42

DUB: Dysfunctional uterine bleeding, Chronic PID: Chronic pelvic inflammatory disease, UV Prolapse: Uterovaginal prolapse, Ca: Carcinoma

Table 6: Distribution according to histopathological report

Histopathological report	Mahatma Gandhi Institute of Medical Sciences	Jawaharlal Nehru Medical College	Sushrut Hospital	Mogre Hospital
Leiomyoma (%)	682 (28.49)	1054 (50.41)	459 (50.05)	21 (50.00)
Adenomyosis (%)	482 (20.13)	236 (11.29)	89 (9.71)	2 (4.76)
Fibroid polyp (%)	6 (0.25)	2 (0.09)	17 (1.85)	0
Chronic endometritis (%)	22 (0.92)	8 (0.38)	18 (1.96)	1 (2.38)
Atrophic endometrium (%)	7 (0.29)	12 (0.57)	80 (8.72)	11 (26.19)
Endometrial hyperplasia (%)	8 (0.33)	0	5 (0.55)	0
Endometrium in proliferative phase (%)	392 (16.37)	438 (20.95)	115 (12.54)	2 (4.76)
Endometrium in secretory phase (%)	429 (17.92)	288 (13.77)	96 (10.47)	1 (2.38)
Ovarian cystadenoma (%)	58 (2.42)	53 (2.53)	38 (4.14)	4 (9.52)
Ca cervix (%)	53 (2.21)	0	0	0
Ca ovary (%)	219 (9.15)	0	0	0
Ca endometrium (%)	36 (1.50)	0	0	0
Total	2394	2091	917	42

Ca: Carcinoma

Most of the hysterectomies were done in patients of age group 41–45 years in all four hospitals (42.06% in MGIMS, 54.76% in JNMC, 50.93% in Sushrut Hospital, and 50% in Mogre Hospital).

Table 7: Distribution according to complications

Complication	Mahatma Gandhi Institute of Medical Sciences	Jawaharlal Nehru Medical College	Sushrut Hospital	Mogre Hospital
Excessive intraoperative hemorrhage	2	1	1	0
Intraoperative bowel/bladder/ureter injury	1	0	0	0
Wound infection	6	1	1	1
Paralytic ileus	2	1	0	0
Sepsis	1	0	0	0
Post-menopausal syndrome	1	0	0	0
Psychological	3	0	0	0
Total (%)	16 (0.67)	3 (0.14)	2 (0.22)	1 (2.38)

In all four hospitals, hysterectomy was not done in patients of age >35 years during a study period of 5 years [Table 2].

In MGIMS, most of the hysterectomies (61.11%) were done in patients of lower socioeconomic status and least (3.97%) in upper socioeconomic status patients [Table 3]. In JNMC, most hysterectomies (63.99%) were done in patients of middle socioeconomic status and least (2.06%) in lower socioeconomic status patients. In Sushrut Hospital, most of the hysterectomies (64.99%) were done in patients of middle socioeconomic status, and least (0.65%) in Sushruta Hospital. In Mogre Hospital, most of the hysterectomies (52.38%) were done in middle socioeconomic status patients and least (2.38%) in lower socioeconomic status patients.

The most common type of hysterectomy performed in MGIMS, JNMC, and Sushrut Hospital was total abdominal hysterectomy (39.56%, 57.34%, and 50.05%, respectively). However, in Mogre Hospital, the most common type of hysterectomy performed was non-descent vaginal hysterectomy (47.62%) [Table 4].

The most common indication of hysterectomy in JNMC, Sushrut Hospital, and Mogre Hospital was a uterine fibroid (50.41%, 50.05%, and 50%, respectively). However, in MGIMS most common indication of hysterectomy was uterovaginal prolapse 28.78%, the second most common indication was a uterine fibroid (28.57%), and the third most common indication was adenomyosis (20.05%).

In JNMC, the second and third most common indications of hysterectomy were uterovaginal prolapse (23.67%), and DUB (11.57%), respectively.

In Sushrut Hospital, the second and third most common indication of hysterectomy was DUB (19.96%) and adenomyosis (9.70%), respectively.

In Mogre Hospital, the second and third most common indications of hysterectomy were ovarian cysts (9.52%) and DUB (7.14%), respectively [Table 5].

The most common histopathological diagnosis was leiomyoma in all four hospitals (in MGIMS 28.49%, in JNMC 50.41%, in Sushrut Hospital 50.05%, and in Mogre Hospital 50.0%). The second most common histopathological finding in MGIMS was adenomyosis (20.13%), in JNMC and Sushrut Hospital was endometrium in proliferative phase (20.95% and 12.54%, respectively), and in Mogre Hospital was atrophic endometrium (26.19%) [Table 6].

Complications associated with hysterectomies were 0.67% in MGIMS, 0.14% in JNMC, 0.22% in Sushrut Hospital, and 2.38% in Mogre Hospital. Wound infection was the most common complication in all four hospitals [Table 17].

DISCUSSION

The total number of hysterectomies done in all four hospitals during the study period of 5 years was 5444.

Most of the hysterectomies were done in the patients of age group 41–45 years in all four hospitals (42.06% in MGIMS, 54.76% in JNMC, 50.93% in Sushrut Hospital, and 50% in Mogre Hospital). Similar results were found in other studies.^[2,3,7-11]

In MGIMS, most of the hysterectomies (61.11%) were done in patients of lower socioeconomic status and least (3.97%) in upper socioeconomic status patients. In JNMC, most of the hysterectomies (63.99%) were done in patients of middle socioeconomic status and least (2.06%) in lower socioeconomic status patients. In Sushrut Hospital, most of the hysterectomies (64.99%) were done in patients of middle socioeconomic status, and least (0.65%) in Sushruta Hospital. In Mogre Hospital, most of the hysterectomies (52.38%) were done in middle socioeconomic status patients and least (2.38%) in lower socioeconomic status patients. This may be because most of the patients who visited MGIMS were of lower or lower middle socioeconomic status and in private hospitals – JNMC, Sushrut Hospital, and Mogre Hospital, most of the patients who visited were of middle and upper middle socioeconomic status.

The most common type of hysterectomy performed in MGIMS, JNMC, and Sushrut Hospital was total abdominal hysterectomy (39.56%, 57.34%, and 50.05%, respectively). Similar results were found in other studies.^[1,8,10,12] However,

in Mogre Hospital, the most common type of hysterectomy performed was non-descent vaginal hysterectomy (47.62%).

The most common indication of hysterectomy in JNMC, Sushrut Hospital, and Mogre Hospital was a uterine fibroid (50.41%, 50.05%, and 50%, respectively). Similar results were found in other studies.^[2,3,7,9,12] However, in MGIMS most common indication of hysterectomy was uterovaginal prolapse (28.78%), second most common indication was a uterine fibroid (28.57%) and the third most common indication was adenomyosis (20.05%). In JNMC, the second and third most common indications of hysterectomy were uterovaginal prolapse (23.67%) and DUB (11.57%), respectively. In Sushrut Hospital, second and third most common indications of hysterectomy were DUB (19.96%) and adenomyosis (9.70%), respectively.

The most common histopathological diagnosis was leiomyoma in all four hospitals (in MGIMS 28.49%, in JNMC 50.41%, in Sushrut Hospital 50.05%, and in Mogre Hospital 50.0%). Similar results were observed in other studies.^[2,3,7,9-11] The second most common histopathological finding in MGIMS was adenomyosis (20.13%), in JNMC and Sushrut Hospital was endometrium in the proliferative phase (20.95% and 12.54%, respectively), and in Mogre Hospital was atrophic endometrium (26.19%). In most of the cases histopathological diagnosis correlated with the pre-operative diagnosis except in a few cases. In two cases, the pre-operative diagnosis was fibroid uterus but histopathologically those came out to be adenomyosis and in six cases, the pre-operative diagnosis was DUB but histopathologically those came out to be chronic endometritis.

Complications associated with hysterectomies were 0.67% in MGIMS, 0.14% in JNMC, 0.22% in Sushrut Hospital, and 2.38% in Mogre Hospital. Wound infection was the most common complication in all four hospitals. Results were comparable with the study done by Pandey *et al.*^[12]

CONCLUSION

This study concludes that the most common indication of hysterectomies was uterine fibroid which is a benign pathology and in most of the cases histopathological reports correlated with the pre-operative diagnosis except in a few cases. This study concludes that like any other surgical procedure, hysterectomy is also associated with complications during and after surgery. Therefore, all the hysterectomies should be reported to meticulously evaluate the indication of hysterectomy to improve the quality of health services. Clinical strategies and policies should be

made so that we can avoid unnecessary hysterectomies, especially in younger ages, and thus, the risks and adverse effects associated with it.

Ideally, newer and less invasive treatment options such as levonorgestrel intrauterine devices, endometrial ablation, uterine artery embolization, and operative hysteroscopy should be offered to women with benign pathologies. This will further reduce the incidence of hysterectomy. However, lack of knowledge among the patients about the disease, adverse effects associated with the hysterectomy, and effective alternative methods available for hysterectomy are the major factors associated with the rising rate of hysterectomy. Lack of the latest equipment and technical skills are also the major hurdles in providing an ideal standard of care.

Hence, women need education and special counseling about this. Awareness programs should be conducted to explain to them that hysterectomy, especially in younger ages, is associated with serious adverse effects. For benign conditions, alternative methods to hysterectomy should be used first. For this, the equipment required should be made available in the government setup so that it should be within everyone's reach. Seminars, symposiums, and workshops should be conducted to train the faculty in other methodologies and techniques.

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