

The Auditing of Hysterectomies in a tertiary care centre in Public Sector: A Retrospective Descriptive study

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Abstract:

Background: The needs assessment for hysterectomy for various benign and malignant gynaecological pathologies has garnered vast scrutiny and is a burning topic in the debate. Clinical audit of hysterectomies is of pivotal importance to identify standards of practice and to frame recommendations. This study is one such wherein we have audited the hysterectomies in both the realms of obstetrics and gynaecology in a tertiary care hospital with gynaecological oncology unit in the public sector

Aims and Objectives: To elucidate the changing trends in the route of hysterectomies with their indications.

Materials and Methods: This study is a retrospective descriptive study conducted in the department of Obstetrics and Gynaecology at Karnataka Institute of Medical Sciences and Research Hospital, Hubballi, a tertiary care hospital run by Government of Karnataka. The data was collected from individual case sheets and the e-hospital database of a duration of 6 years.

Results: In the last 6 years, total of 261122 women attended the gynaecological OPD. The total number of hysterectomies were 3532. The mean rate of hysterectomy calculated is 1.352%.

Keywords: Hysterectomy, Gynecological Pathologies, Clinical Audit, Surgical Trends, Tertiary Care, Gynecological Oncology

1 INTRODUCTION

The term 'Hysterectomy' implies removal of the uterus by a surgical procedure. It is not only the most common gynaecological surgery performed all over the globe, it is also the second most common surgery performed on women, only next after caesarean section. Hysterectomy audit plays an important role in scrutinizing the data and needs within the institution. The routes of hysterectomies, the changing technicity, the improved of quality of life by these decisions enhance the patient satisfaction and care. Technicity is the proportion of hysterectomies done by a minimally invasive route (TLH, LAVH, NDVH and VH) [1]. Over the years the technicity is being markedly improvising due to the AI-advanced learning facilities. There are various subtypes of hysterectomy like partial, complete, radical, subtotal depending upon the pathology and the uterine adnexa that is removed [2]. Simple extra-fascial hysterectomies are done for benign conditions like the AUB – due to structural pathologies like Polyp, Adenomyosis, Leiomyoma, Metaplasia (Including endometrial hyperplasia- simple/complex) whereas the radical surgeries are done for early-stage endometrial cancers, cervical cancer <stage IIB [3-6]. Hysterectomies done, bear both positive effects as well as negative complications on the well-being of the women². It reduces the mental burden, the anxiety and depression among women with AUB who bleed continuously and have a poor quality of life due to this reason. Surgical procedure is the definitive treatment of choice for such pathologies. However as quoted by Dicker- When the risk of preserving the uterus is higher than the risk of removing it, or when there are incapacitating symptoms for which there

is no effective medical intervention, a hysterectomy should be carried out [7].

Due to differences in the pathology and the disease of uterus, the trends, prevalence, and patterns of hysterectomies vary depending upon the efficiency of the provider, patient characteristics and needs as well as the socio-cultural practices². The hysterectomies audit data in India is very limited. At present there are no nationally reliable statistics of this surgery. The endemic literature access is finite, as all the practices are not on papers yet. The fourth National Family Health Survey (NFHS-4)- a cross-sectional survey- conducted in 2015–16, collected data on hysterectomy among women in the reproductive age group for the first time. After these, few other studies were conducted in various parts of the country but all these were descriptive cross-sectional studies which were primarily institution based.

Obstetric Hysterectomy is a life-saving surgery carried out when there is medically and surgically uncontrollable haemorrhage after vaginal delivery or a c-section. Also, for Placenta Accreta Spectrum comprising of Placenta accreta, increta and percreta, in case of non-salvageable uteri Caesarean hysterectomy is performed as a last resort. Our study includes such hysterectomies as well.

Hysterectomy is not the only answer for all uterine pathologies. Levonorgestrel-releasing intrauterine system and endometrial ablation are few other modalities worth comparing with the surgical approach [8]. Like any other surgery, hysterectomy is also associated with many intra-operative and post-operative complications. But the technicity minimizes these complications. This study aims

to describe and analyse indications, route, changing trends in route and complications associated with the procedure.

2 AIMS AND OBJECTIVES

1. To elucidate the changing trends in the route of hysterectomies with their indications.
2. To describe the indications of hysterectomies during this tenure.
3. To enlist route-wise complications following these surgeries.

3 MATERIALS AND METHODS

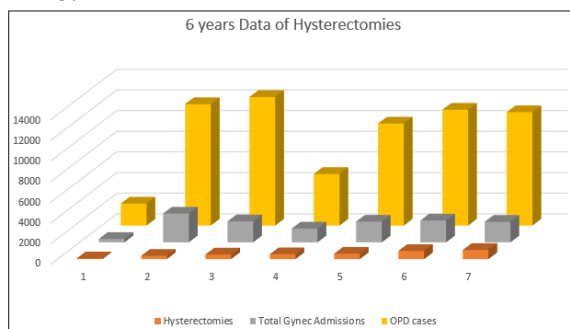
This study is a Retrospective Observational research study carried out in the department of Obstetrics and Gynaecology, Karnataka Institute of Medical Sciences and Research Hospital, a tertiary care hospital serving the central and norther part of Karnataka. All women who underwent hysterectomy between November 2017 to November 2023, i.e., over a period of 6 years, in our hospital, be it for obstetric, benign, or malignant gynaecological reason were included into the study. The confidentiality of the data was maintained. The research unit collected and compiled all data and parameters for analysis after reviewing all the case papers thoroughly from the Medical Records Department of the institution. The International Coding of Diseases - 10 tracking system was used to identify the case records. Complicated cases and malignancy cases were phone called and followed up as per necessity.

4 STATISTICAL ANALYSIS

SPSS version 27 (2021, IBM Corporation, USA) was used for analysis of the data. The results obtained are described in the following paragraphs. Student T test and Chi-square tests were applied according to the variables. Only the p-values < 0.005 were considered to be statistically significant.

5 RESULTS

In the last 6 years, total of 261122 women attended the gynaecological OPD. The total number of hysterectomies were 3532. The mean rate of hysterectomy calculated is 1.352%. Graph 1 depicts the proportion of hysterectomy cases among the OPD attendees. Table 1 shows the age and parity of the patients who underwent hysterectomy. Their mean age was 46.16 years and the average parity was 2.87.



Graph 1: Proportion of women undergoing hysterectomy in last 6 years

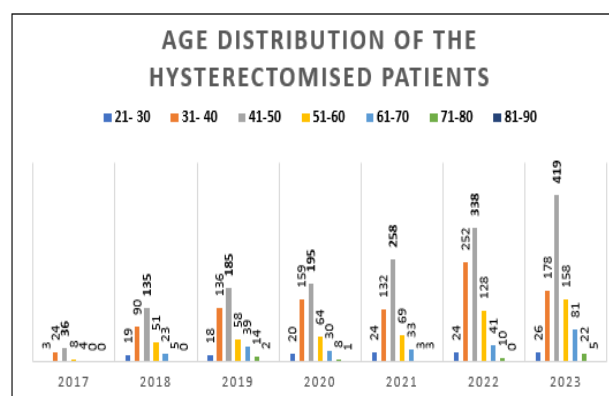
Table 1: Mean Age and Parity of the women who underwent hysterectomy

Characteristic	Minimum	Maximum	Mean
Age	21	82	46.16
Parity	0	7	2.87

From the table 2 we can see that most of our patients belonged to lower socio-economic status of B.G. Prasad classification-4 .64.6% were rural residents. The point that must be noted here that many cases of endometrial hyperplasia were operated fearing the lack of follow-up for the subsequent endometrial biopsies, and AUBs that affected the quality of life of patients who were daily wages workers were also operated. Thus socio-demographic factors have played an important role in decision making with regard to proceeding with hysterectomies. Graph 2 depicts the age distribution of the patient's year wise and we can see that majority of the patients had crossed 40 years.

Table 2: The demographic profile

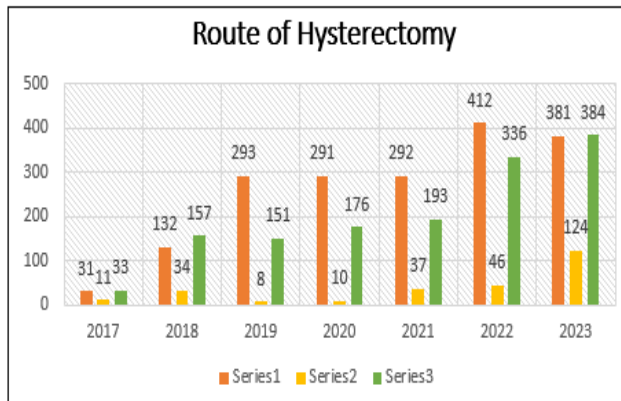
Characteristic	Frequency (n= 3532)	Percentage (%)
Socio-Economic Status		
B.G. Prasad Class 1	192	5.5
2	476	13.6
3	692	19.7
4	1476	41.9
5	696	19.8
Residence:		
Urban	1249	35.4
Rural	2283	64.6
Education:		
Illiterate	873	24.7
Primary	2134	60.4
Secondary	525	14.9
Hypertension:		
Yes	425	12
No	3107	88
Diabetes Mellitus:		
Yes	286	8.1
No	3246	91.9



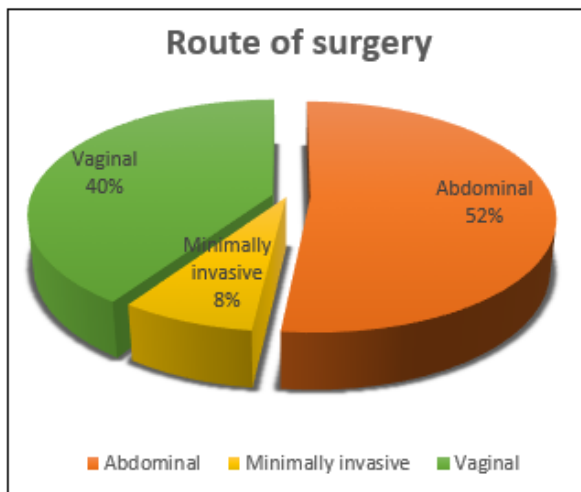
Graph 2: Age distribution

From Graph 3,4 it is evident that the trends of hysterectomies have been shifted from abdominal to vaginal routes and the minimally invasive laparoscopic approach has also increased. This is due to the technicity

of the surgeons as well as the facilities made available under the public sector to the government hospital operation theatres. Graph 3 clearly depicts that vaginal and laparoscopic trend is increasing year by year.

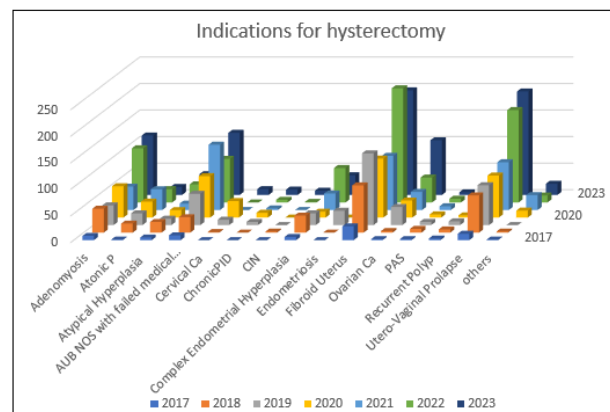


Graph 3: Routes of hysterectomy



Graph 4: Routes preferred

Graph 5 and Table 3 show the various indications for which these hysterectomies were performed. In 2023, the most common indications were uterovaginal prolapse and fibroid uterus and AUB – NOS with failed medical management. 98.2% of the hysterectomies were performed electively and only 1.8% of these were emergency carried out for obstetric indications like Placenta Accreta Spectrum (PAS) or the Postpartum Haemorrhage. The type of surgeries carried out is summarized in Table 4 and their complications in Table 5. The number of Non-Descent Vaginal Hysterectomy has increased over years; There is a significant linear trend in all the surgeries as the years have progressed. Duration of stay in hospital post the surgery was least for minimally invasive route followed by the vaginal surgeries. On an average around 5 cases every year have undergone caesarean hysterectomy for placenta accreta spectrum. Total Abdominal Hysterectomy had the highest incidence of bladder injuries. Other complications are enlisted in Table 5 according to the surgery performed. Only 5 patients died post-hysterectomy of which both the Mayo Wards cases had Myocardial Infarction, and 2 staging laparotomy cases and Wertheim's hysterectomy case were diagnosed to have advanced malignancy.



Graph 5: Overall Indications of hysterectomy over these 6 years

Table 3: Indications of hysterectomy

	2017 (only last 2 months)	2018	2019	2020	2021	2022	2023	TOTAL
Adenomyosis	8 (10.67%)	45 (13.93%)	37 (8.19%)	59 (12.91%)	69 (13.07%)	102 (12.72%)	112 (12.51%)	432
Atonic PPH	1 (1.33%)	17 (5.26%)	22 (4.87%)	30 (6.56%)	49 (9.28%)	25 (3.12%)	15 (1.68%)	159
Atypical Endometrial Hyperplasia	5 (6.67%)	20 (6.19%)	27 (5.97%)	14 (3.06%)	22 (4.17%)	34 (4.24%)	39 (4.36%)	161
AUB-NOS including failed medical management	9 (12%)	29 (8.98%)	59 (13.05%)	78 (17.07%)	59 (11.17%)	82 (10.22%)	80 (8.94%)	396
Ca cervix	0	1 (0.31%)	10 (2.21%)	11 (2.41%)	6 (1.14%)	9 (1.12%)	26 (2.91%)	63
Chronic PID	0	0	6 (1.33%)	9 (1.97%)	3 (0.57%)	5 (0.62%)	10 (1.12%)	33
Carcinoma In Situ	0	2 (0.62%)	0	0	1 (0.12%)	1 (0.12%)	9 (1.01%)	12
Complex Endometrial Hyperplasia	6 (8%)	32 (9.91%)	22 (4.87%)	11 (2.41%)	31 (5.87%)	65 (8.10%)	57 (6.37%)	224
Endometrial Carcinoma	0	0	12 (2.65%)	0	1 (0.19%)	4 (0.50%)	10 (1.12%)	27
Fibroids	26 (34.67%)	89 (27.55%)	135 (29.87%)	111 (24.29%)	107 (20.27%)	215 (26.81%)	197 (22.01%)	880
Recurrent Polyp	3 (4%)	6 (1.86%)	7 (1.55%)	4 (0.88%)	8 (1.52%)	19 (2.37%)	21 (2.35%)	68
Utero-vaginal Prolapse	12 (16%)	70 (21.67%)	75 (16.59%)	79 (17.29%)	104 (19.70%)	174 (21.70%)	195 (21.79%)	709
Ovarian Tumour	2 (2.67%)	3 (0.93%)	34 (7.52%)	32 (7%)	34 (6.44%)	47 (5.86%)	103 (11.51%)	255
Placenta Accreta Spectrum	2 (2.67%)	7 (2.17%)	6 (1.33%)	6 (1.31%)	7 (1.33%)	7 (0.87%)	5 (0.56%)	40
Others	1 (1.33%)	2 (0.62%)	0	13 (2.81%)	28 (5.30%)	13 (5.86%)	16 (1.79%)	73
TOTAL	75	323	452	477	522	794	889	3532

Table 4: Types of hysterectomy

	2017 (only last 2 months)	2018	2019	2020	2021	2022	2023	TOTAL
C- Hysterectomy	2 (2.67%)	7 (2.17%)	6 (1.33%)	6 (1.36%)	7 (1.34%)	7 (0.88%)	5 (0.56%)	40
LAVH	0	2 (0.62%)	1 (0.22%)	2 (0.42%)	3 (0.57%)	1 (0.13%)	11 (1.24%)	20
Mayo-ward's	11 (14.67%)	66 (20.43%)	64 (14.16%)	71 (14.88%)	75 (14.37%)	161 (20.28%)	183 (20.58%)	631
NDVH	22 (29.33%)	91 (28.17%)	87 (19.25%)	105 (22.01%)	118 (22.61%)	175 (22.04%)	201 (22.61%)	799
Peripartum Hysterectomy	1 (1.33%)	17 (5.26%)	22 (4.87%)	30 (6.29%)	39 (7.47%)	26 (3.27%)	36 (4.05%)	171
Staging Laparotomy	4 (5.33%)	12 (3.72%)	36 (7.96%)	28 (5.87%)	26 (4.88%)	21 (2.64%)	63 (7.09%)	190
TAH	15 (20%)	52 (16.10%)	160 (35.40%)	160 (33.54%)	181 (34.67%)	203 (25.57%)	146 (16.42%)	917
TAH with BSO	8 (10.67%)	39 (12.07%)	66 (14.60%)	64 (13.42%)	35 (6.70%)	150 (18.89%)	120 (13.50%)	482
TLH	11 (14.67%)	32 (9.91%)	7 (1.55%)	8 (1.68%)	34 (6.51%)	44 (5.54%)	113 (12.71%)	249
Wertheim's Hysterectomy	1 (1.33%)	5 (1.55%)	3 (0.66%)	3 (0.63%)	4 (0.77%)	6 (0.76%)	11 (1.24%)	33
TOTAL	75	323	452	477	522	794	889	3532

Table 5: Complications of Hysterectomy Procedures

Complications	Abdominal Route				Vaginal Route		Minimally Invasive (Laparoscopy)	
	TAH	TAH with BSO	Staging Laparotomy	Wertheim's Hysterectomy	Mayo Wards Procedure	NDVH	LAVH	TLH
Intra-Operative:								
Bladder Injury (238)	78	49	41	1	66	-	-	3
Intestine/Colon injury (61)	23	8	19	2	1	-	-	8
Ureteric Injury (9)	1	-	5	3	-	-	-	-
Blood loss >1000ml (Haemorrhage) (359)	92	19	34	6	102	76	21	9
Major Vessel Injury (21)	3	2	12	4	-	-	-	-
Post-Operative:								
ICU admission (1103)	187	161	67	33	109	95	-	451
Post op Pneumonia (33)	16	3	8	1	-	-	-	5
Need for blood transfusion (387)	53	48	36	18	139	76	-	17
Surgical Site Infection (26)	12	5	9	-	-	-	-	-
Vault Hematoma (5)	-	-	-	-	3	2	-	-
Burst Abdomen (3)	-	-	3	-	-	-	-	-
Pelvic Abscess (3)	-	-	2	-	-	-	1	-
Deep Venous Thrombosis (7)	3	-	-	4	-	-	-	-
Exaggeration of Comorbidities (127)	12	22	33	-	52	12	2	-
DEATH before discharge (In Patient Post-operative death) (5)	-	-	2	1	2	-	-	-

6 DISCUSSION

In these 6 years of the study period the rate of hysterectomies has remained comparable except for 2019 where less hysterectomies were performed in view of the COVID-19 pandemic. However, there is change in trends in the route of the approach with each progressive year as seen from the graphs shown. The most common age group in our study tenure which underwent hysterectomy was 40 to 50 years which was comparable with many other studies including the audit of Lalita et.al [16], [22, 23]. The mean age was 46.16years. 135 patients in 2018, 185 in 2019, 195 in 2020, 258 in 2021, 338 in 2022, 419 in 2023 belonged to this age group (40-50 years). The youngest patient was 21 years' old who underwent caesarean hysterectomy for Placenta Accreta Spectrum with an intra-op diagnosis of placenta percreta whereas the oldest patient was 82 years' old who underwent staging laparotomy for ovarian tumour with a CA-125 of 199.5 IU/ml; her intra-operative diagnosis was malignant ovarian tumour. (Histopathology: serous cystadenocarcinoma).

Most of the patients who underwent hysterectomy at our institute were belonging to lower socioeconomic status (Modified B.G. Prasad classification- 4) - 1476 cases which amounted to 41.9% of the total hysterectomy cases in these 6 years. 2283 cases (64.6%) belonged to rural background. Our institution is funded by government and therefore the services are provided to the patients are at a subsidised pricing. Therefore, rural, and low socioeconomic status patients are prioritized. One more

logical point that must be emphasized here, is that, the endometrial hyperplasia cases which are difficult to follow up and would return to us back only in the later stages in life when the Carcinoma has set in, were also prophylactically operated. Atypical hyperplasia carries 30% risk of progressing into carcinoma in next 20 years. The incidence of endometrial cancer has increased by 54% in past 25 years all over the globe [12]. The cruciality of follow up in cases of endometrial hyperplasia is vital to check the progression into carcinoma [10,11]. It was made sure that their family is completed and the menorrhagia/ menstrual complaints were really debilitating for the patient and would hamper her day-to-day activities. It is to be said here that hysterectomy is the definitive cure for such dilemmas [13]. 60.4% i.e., 2134 cases out of 3532 cases had received primary schooling. Schooling and menstrual education in the tender years of life would make our girls more vocal and aware about their uterine problems. This we observed considering a sub-cohort where in illiterate patients always sought the medical care late in the disease progress.

There were 40 cases of caesarean hysterectomy which were performed for morbidly adherent placenta. This is reported to be higher when compared to other studies probably due to the tertiary referral nature of this institute [18-20]. This number alarms us to reduce the rates of primary caesareans and to give a trial of labour before taking a decision to proceed with LSCS. There were 171 cases of peripartum hysterectomy performed for postpartum haemorrhage (Atonic PPH predominantly).

This trend is comparable with that of a study conducted by Bolnga in Papua, New Guinea [21], [24]. Multidisciplinary approach is needed in such circumstances and national guidelines should be implemented to improve patient wellbeing [25].

In these 6 years, abdominal was the more preferred route, followed by vaginal and then laparoscopic. It is only reasonable to note that the benign cases were high with fibroid uterus as the predominant condition making these statistics justified. We also noted that the laparoscopic approach overtook other routes over the years as the technicity of our surgeons improved remarkably. The complications associated with the laparoscopic approach were also minimal. The most common indication for hysterectomies in 2018 was fibroid uterus (89 cases - 27.55%) followed by adenomyosis. This is comparable with the HPR studies in hysterectomy specimens done by Tahseen et.al [9]. In 2019, most of the hysterectomies were due to fibroids followed by AUB-NOS with failed medical management. Over these 6 years a total of 631 cases have undergone Ward and Mayo's repair after Vaginal Hysterectomy. This number is comparable to a retrospective study conducted at Puducherry Hospital in 2021 where in 110 cases were operated in 2 years' duration [26]. For carcinoma cervix stage 2a, Wertheim's hysterectomy was carried out. There were a total of 33 Wertheim's in these 6 years. This is comparable with the study conducted by Fram M K [28].

The rate of complications ranged between 0.4% to 1.2% over these years. Blood loss of around 1000 ml requiring blood and blood products transfusion is the most common major complication. This was comparable with the hysterectomy audit reported by Matthias et.al¹⁵. Few other minor complications were post-operative pain abdomen, pyrexia, surgical site infection among others like the complications reported in a study conducted by Obiliki c et.al [14]. 26 cases in our study developed surgical site infection. This incidence is remarkably less as the hysterectomy bundle to reduce surgical site infection was followed as guided in a study by Pangan.et.al [17]. Total abdominal hysterectomies were associated with bladder and ureteric injuries on a larger scale when compared to the laparoscopic approach. In a similar study published by the Danish Database, it was reported that the incidence of ureteric and bladder injuries could be reduced by increasing the laparoscopic surgeries. Also, one more important factor is that the duration of hospital stay is least in TLH than compared to other routes. In a study conducted by Sally Byford, it was reported that 94.81% patients (n=77), went back home the same day of operation [27]. Therefore, it is only justified to shift our surgical frame to laparoscopic approach [29].

7 CONCLUSION

In conclusion, we report a changing trend in routes of hysterectomy over these 6 years. This audit provides introspection and reasons out the need of shifting the abdominal to the vaginal or the laparoscopic route for hysterectomy. This will not only reduce the complications but also be beneficial for the patients.

ABBREVIATIONS

TLH: Total Laparoscopic Hysterectomy
LAVH: Laparoscopic Assisted Vaginal Hysterectomy
NDVH: Non-Descent Vaginal Hysterectomy
VH: Vaginal Hysterectomy
AUB: Abnormal Uterine Bleeding
AUB-NOS: Abnormal Uterine Bleeding- Not Otherwise Specified
PID: Pelvic Inflammatory Disease
CIN: Carcinoma In Situ
PAS: Placenta Accreta Spectrum

Conflict of interest

There is no conflict of interest.

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