Trends of hysterectomy in the rural tertiary level teaching hospitals in Northern India

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Abstract

Objective: The aim of this study is to analyze indications, type and complications of hysterectomies done in the two rural tertiary level teaching institutes in Northern India.

Materials and Methods: It was a retrospective study in which the detailed analysis of demographic data of the patients, surgical indications, route of surgery and complications of the patients undergoing hysterectomy in one year (January 2015-December 2015) in Mayo Institute of Medical Sciences and Hind Institute of Medical Sciences in Barabanki, Uttar Pradesh, India was done.

Results: Out of the total 157 cases of hysterectomy performed in two institutes, the incidence of vaginal hysterectomy was significantly higher (69.43% vs 30.57%, $p<0.05$) as compared to the abdominal hysterectomy. Pelvic organ prolapse was the most common indication for hysterectomy in the study group. Fibroid uterus, dysfunctional uterine bleeding, ovarian mass, chronic pelvic inflammatory disease and cervical intraepithelial neoplasia were the other indications. Hemorrhage during abdominal hysterectomy was the most common complication encountered (n= 6, 3.82%).

Conclusions: Lack of equipment's and technical support, unawareness of the patient, and financial constraints are the major factors leading to hysterectomy rather than resorting to minimal invasive techniques for benign gynecological complains. Moreover, the incidence of pelvic organ prolapse in the rural population should be reduced by promoting institutional deliveries, awareness about the benefits of adequate post-partum rest and nutrition, and effective contraception to avoid repeated child births. This will further help in reducing the rate of hysterectomy in rural population.

Keywords: Hysterectomy, Vaginal route, Pelvic organ prolapse

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Introduction

Hysterectomy is the most common gynecological surgery in women[1]. Minimal invasive techniques for benign gynecological diseases are responsible for fall in the trends for hysterectomy in the developed world[2]. Focus in these countries have shifted to lesser invasive techniques such as endometrial ablation, thermal balloon therapy, uterine artery embolization, or levonorgestrel releasing intrauterine system, laparoscopic hysterectomy, or robotic surgery[3].

In developing countries, the incidence of hysterectomy is still high compared to minimally invasive techniques. The rural areas have a higher rate of this radical surgery. The major causative factors are limited resources available, late presentation of the patient at the health care facility and seeking a permanent cure to their condition at low cost with minimal requirement of follow up[4].

Restricted availability, technical insufficiency and high cost are the major limiting factors for the underusage of minimally invasive surgical options in rural areas. Hysterectomy is thus resorted to for a wide range of gynecological diseases in rural areas in developing countries. A study conducted in the northern state of India (Haryana) reported incidence of hysterectomy to be 7% among married women above 15 years of age[5]. Another study from a western state of India (Gujarat) reported that 7-8% of rural women and 5% of urban women had already undergone hysterectomy at an average age of 37 years[6]. All these data indicate that the hysterectomy, abdominal or vaginal, still remains the widely accepted treatment of choice for the majority of gynecological diseases in rural India. Long standing diseases like pelvic organ prolapse and dysfunctional uterine bleeding constitute the major indications for hysterectomy in rural areas. This present study is done to analyze the trend of hysterectomy over the past one year in two rural tertiary level teaching hospitals in northern India.

Material and Methods

This was a retrospective study performed in the departments of obstetrics and gynecology from January 2015 to December 2015 in Mayo Institute of Medical Sciences and Hind Institute of Medical Sciences in Barabanki, Uttar Pradesh, India. Both these teaching

institutes cater to the adjoining rural population. The study group included the women of age 35 years and above who underwent hysterectomy (Total abdominal hysterectomy with or without bilateral salpingoophrectomy, with unilateral salpingoophrectomy, vaginal hysterectomy) for any gynecological indication. Obstetric and emergency hysterectomies were excluded from the study. Demographic data, clinical findings and surgical records, including indications for surgery and type of procedure were recorded. Statistical analysis was done using SPSS software.

Results

A total of 157 hysterectomies were done in the two hospitals over one year duration. Majority of the patients undergoing hysterectomy were multiparous, with 51% of women having parity four or more (Fig. 1). Only 1% of the study population was nulliparous. The age distribution analysis of the patients in the study group showed that the significant number of patients undergoing hysterectomy were in the age group of 51-55 years. The incidence of hysterectomy was higher in the advanced age group (>51 years) was higher compared to those in age group 35 – 50 years (Fig. 2).

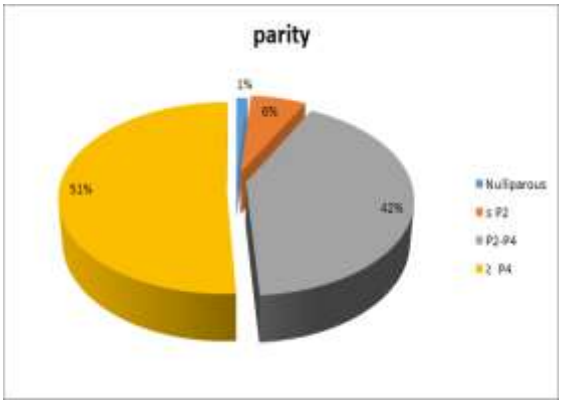

Fig. 1: **Parity of the patients who underwent hysterectomy**

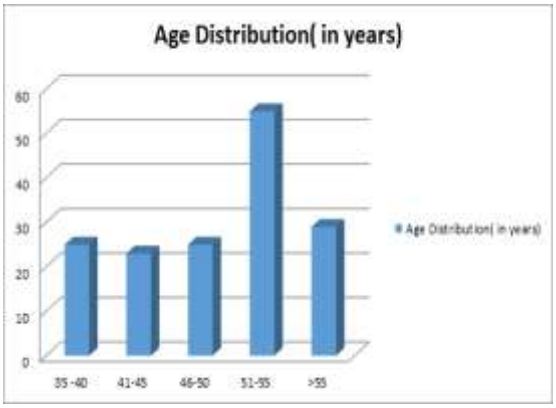

Fig. 2: Age distribution in the study group

Vaginal hysterectomy for pelvic organ prolapse was the commonest type of hysterectomy done in the study group (Table 1). Vaginal hysterectomy with pelvic floor repair (n=105) was significantly higher than the abdominal hysterectomy (66.85% vs 30.57%, $p < 0.05$). Non descent vaginal hysterectomy was done for 4 patients (2.55%).

The various types of abdominal hysterectomy included total abdominal hysterectomy (n=11, 7%), total abdominal hysterectomy with unilateral salpingoophrectomy (n= 1, 0.63%), total abdominal hysterectomy with bilateral salpingoophrectomy (n= 36, 22.90%). Vaginal hysterectomy included vaginal hysterectomy with pelvic floor repair for pelvic organ prolapse (n= 105, 66.85%) and non-descent vaginal hysterectomy (n= 4, 2.55%).

The most common indication for hysterectomy in this study group was pelvic organ prolapse (n=105, 66.85%). Fibroid (single/ multiple) in the uterus was the second most common indication for hysterectomy (n= 29, 18.47%). It was the most common indication for the abdominal hysterectomy (n= 28/48, 58.33%). Other indication were dysfunctional uterine bleeding (n= 6, 12.5%), ovarian mass (n=7, 14.58%), chronic pelvic inflammatory disease (n=2, 4.17%) and adenomyosis (n=1, 2.08%).(Fig. 3)

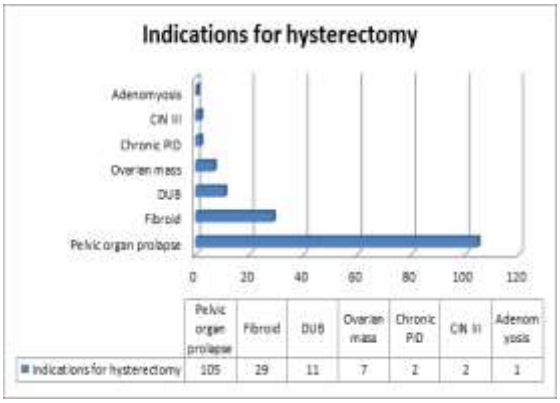

Fig. 3: Bar graph showing the various indications for hysterectomy in this study

One patient with fibroid uterus and 3 patients with dysfunctional uterine bleeding (DUB) underwent non descent vaginal hysterectomy. The patients having DUB were confirmed to have cystic glandular hyperplasia in histopathology of the endometrial tissue prior to surgery.

Hemorrhage was the major complication (Table 2) which was encountered in these elective surgeries (n=6, 3.82%). All the incidences of hemorrhage were encountered intraoperatively during abdominal hysterectomy (blood loss more than 500 ml) and were managed meticulously by the operating surgeons. Rectal, urethral, bladder injury was encountered in one case each. These injuries were encountered during vaginal hysterectomy with pelvic floor repair. Post-

operative wound sepsis was present in 2 cases, both of which developed sepsis in abdominal suture line after abdominal hysterectomy.

Table 1: **Types of hysterectomy done**

Type of hysterectomy	Number	Percentage
TAH	11	7.00
TAH + unilateral SO	1	0.63
TAH + BSO	36	22.90
VH + PFR	105	66.85
NDVH	4	2.54

TAH = Total abdominal hysterectomy, SO= Salpingo-oophrectomy, BSO = Bilateral Salpingo-oophrectomy, VH + PFR = Vaginal hysterectomy with pelvic floor repair, NDVH = Non descent vaginal hysterectomy

Table 2: **Complications encountered during surgeries included in this study**

Complications	Number (Total = 157)	Percentage
Hemorrhage	6	3.82
Rectal injury	1	0.63
Urethral injury	1	0.63
Bladder injury	1	0.63
Post-operative wound sepsis	2	1.27

Discussion

In our institutions, in a span of one year, a total number of 157 hysterectomies were done. Vaginal hysterectomy for pelvic organ prolapse was the commonest (66.85%) surgery done. Hysterectomy by the abdominal route were performed at a lower incidence (30.57%). This was in contrast to the various studies done earlier in India and other countries in which the incidence of abdominal hysterectomy was significantly more than the vaginal hysterectomy. However, a study by Sharma C et al in rural Indian population showed vaginal hysterectomy to be the most common type of hysterectomy performed in the population studied[3].

The most common indication for the hysterectomy in this study was found to be pelvic organ prolapse (n= 105, 66.85%). This was not in concordance with the other studies done worldwide[7-12] in which the fibroid uterus was found to be the most common indication for hysterectomy. An Indian study done in rural settings[3], however, showed similar result with pelvic organ prolapse (31%) most common indication for hysterectomy. The likely explanation for these changes in trends in urban and rural population are due to marked increased incidence of unsupervised home deliveries, prolonged labour duration, and inadequate rest and nutrition in puerperium in rural population. All this leads to extensive damage to the pelvic floor muscles, supporting ligaments of the uterus and thus leads to greater incidence of pelvic organ prolapse in the rural regions of India.

Early marriage, multiple pregnancies and short interval between the pregnancies are the major contributing factors leading to pelvic organ prolapse in the rural India. In our study, 51% of the women have parity four or more, thus emphasizing the fact that increased parity leads to increased incidence of pelvic organ prolapse and thus increased incidence of vaginal hysterectomy in rural Indian population.

Uterine fibroids were found to be the most common cause for abdominal hysterectomy, however the overall incidence of the fibroid in this study group was far less than quoted in other studies in which the fibroid uterus was the most common indication for hysterectomy. Low prevalence of fibroid in this population was likely due to early age at first pregnancy, high parity and prolonged breast feeding, which is common in the rural population in India. These factors lead to reduced exposure to cyclical hormonal changes of menstrual cycle leading to lower incidence of fibroids in these females.[3]

Bilateral salpingoophrectomy was offered to all the postmenopausal women undergoing total abdominal hysterectomy, however majority of premenopausal women who were offered ovarian preservation refused and underwent removal of bilateral ovaries along with hysterectomy. Screening for cases at high risk for ovarian carcinoma by mutational analysis (BRCA 1 and 2) and regular post-operative follow up is not feasible in rural settings, hence bilateral salpingoophrectomy was done as per the age and wish of the patient.

Majority of the patients undergoing hysterectomy (n= 84, 53.50%) were of the age group 50 years and above, or in the postmenopausal age group. The likely explanation for this age distribution in the study group is usually the onset and increased incidence of pelvic organ prolapse, which is major cause for hysterectomy in this study, in this age group. Patients undergoing hysterectomy in the age group less than 50 years had fibroids, dysfunctional uterine bleeding, ovarian cyst as the major indications for the surgery.

Overall complication rate in this study was 7.01%. Abdominal hysterectomy had a complication rate of 16.67% compared to 2.75% in vaginal hysterectomy ($p < 0.05$). Similar results were also found in the several studies done earlier, thus emphasizing the fact that the vaginal hysterectomy has a lower incidence of complications compared to the abdominal hysterectomy. It is stated in the Cochrane review that the vaginal hysterectomy should be performed in preference to abdominal hysterectomy, whenever possible.

Though various lesser invasive and modern methods are present to treat the benign gynecological disorders, still the hysterectomy is the preferred method in rural settings. Technical causes like lack of equipment's and trained personnel is one of the major

cause of this trend in the rural areas. However, other major contributing factors which play significant role in resorting to hysterectomy rather than conservative management are unawareness of patients and their families, lack of financial resources, late presentation to the hospital, unwillingness for repeated hospital visits for medical and conservative management, seeking permanent solution to the problem with requirement of minimal follow ups and free hospital treatment for the major surgeries. Moreover, gynecological ailments like pelvic organ prolapse in postmenopausal females, which is very common in rural India, need vaginal hysterectomy with pelvic floor repair for the definitive treatment. The incidence of hysterectomy is thus high in rural population. Incidence of pelvic organ prolapse can be reduced by promoting institutional deliveries, awareness about the benefits of adequate post-partum rest and nutrition, and effective contraception to avoid repeated child births. The study thus indicate the need of extensive information, preventive programs and early management of pelvic organ prolapse in rural population, thus reducing the incidence of hysterectomy. Tremendous measures are required from policy makers so that the females in the rural areas should get adequate access to minimal invasive techniques for their gynecological ailments, so that they do not have to undergo hysterectomy which is a major surgery which has its own physical, economic, emotional, sexual, and medical significance to women.

Limitations of the study

The study had short sample size and was confined to rural population of a one area only, hence the results cannot be extrapolated to the whole population. Studies with larger sample size and covering larger population need to be done to further confirm the findings of the above study.

Conclusion

Pelvic organ prolapse is the most common indication for hysterectomy in rural north Indian females. Effective measures should be taken to decrease the incidence of this potentially preventable gynecological pathology, hence leading to decrease incidence of hysterectomy in this population.

Conflict of interest

There is no conflict of interest.

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