

CLINICO PATHOLOGICAL ANALYSIS OF PRE- OPERATIVE DIAGNOSIS AND HISTOPATHOLOGICAL DIAGNOSIS IN HYSTERECTOMY SPECIMENS IN FEMALES UNDERGOING ABDOMINAL HYSTERECTOMY –A THREE YEARS EXPERIENCE

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ABSTRACT

Objective: To study the correlation between preclinical diagnoses/indications of elective abdominal hysterectomy and histopathological diagnosis, thus determining percentage of pre-operative diagnosis that was confirmed on histopathology.

Materials & Methods: This retrospective descriptive study was done in Department of Obstetrics and Gynaecology, Mercy Teaching Hospital, which is affiliated with Peshawar Medical College. The study period was from 1st January 2011 to 31st December 2013 (Three years duration). Data about age, sign symptoms, indications for surgery, and histopathological diagnosis was recorded from the patient's files and noted down in a proforma. Mean, and the standard deviation was used for quantitative data like age. Frequency and percentages were used for qualitative data like gender and diagnosis.

Results: A total of 131 females underwent elective abdominal hysterectomy and were included in the study. Age of the study sample ranged from 35-75 years with a mean of 49±19 years. Most of the cases had benign uterine lesions as diagnosed on histopathological evaluation of their biopsy specimens. Fibroid uterus was the most frequent pathology (seen in 55% cases) as confirmed on histopathological evaluation of the biopsy specimen, followed by Abnormal uterine bleeding. About 85.49% cases were confirmed on histopathological examination. In the rest of the cases, histopathological diagnosis differed from the clinical diagnoses. There was no mortality associated with the procedure.

Conclusion: Histopathology of the specimen is mandatory not only to confirm the pre-operative diagnosis /indication but also to clinch the unexpected pathologies like malignancies, thus aiding in further management of such patients. Uterine fibroids are the commonest pathology in our setup.

Keywords: Hysterectomy, Fibroid, abnormal uterine bleeding, Histopathology.

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INTRODUCTION

Hysterectomy is the surgical procedure done in females in which the uterus is removed from the

pelvis.^{1,2,3} It was in 1843 that Charles Clay performed the first hysterectomy in England.³ Since then, hysterectomy has become one of the most commonly performed surgical procedures in gynecology units all over the world.^{1,2,4,5} Hysterectomy is done to treat a large number of gynecological disorders such as fibroid uterus, abnormal uterine bleeding, Adenomyosis, endometriosis, and many other malignant conditions of the female genital tract.^{1,6,7} The procedure is done widely because it has been found to be very useful in completely curing the underlying gynecological disorders.⁴ It has successfully improved the quality of life of females in terms of decreasing morbidity and mortality related to both benign and malignant conditions of the female genital tract.⁴

The female genital tract consists of the fallopian tubes, uterus, and the cervix.⁷ The uterus by itself is made up of two layers, i.e., myometrium and endometrium.^{7,8} Both of these layers are under the influence of estrogen and progesterone levels in the body.^{7,8} There are a lot of benign and malignant disorders of the female genital tract that may arise in the uterus during the lifetime of a female.^{8,9} These disorders mostly involve the uterus and cervix of the female genital tract.^{7,8}

Nowadays, hysterectomy has become one of the most commonly performed surgical procedures throughout the world.^{4,10,11,12} Overall, the hysterectomy accounts for about 5%–20% of all the gynecological surgeries performed.⁵ The rate of hysterectomy in each area depends on several factors like economic status of the population, social values and cultural practices in that area.^{5,9,11} This means that the rates of hysterectomy are not same, and they differ for every area.⁵ In the United States, hysterectomy reported being the second most common surgical procedure performed.¹³ Literature reports that in the United States, about 37% of the females have already removed their uterus due to certain diseases of the genital tract by the time they reach 55 years of age.¹⁰ Worldwide, the annual rate of hysterectomy is about 6.3 per 1000 females.^{14,15} In the United States, the annual hysterectomy rate is about 5.6 per 1000 female population.^{4,14} In Pakistan, the rate of hysterectomy is reported to be 6.6/1000 female population annually.¹⁴ These figures suggest that the hysterectomy is becoming one of the commonest performed gynecological surgeries worldwide,

including Pakistan. Studies being done in different countries now suggest that the rate of hysterectomy may increase many folds in the coming few years.¹⁶ However, the females in some of the African regions are still reluctant to undergo hysterectomy for their gynecological disorders.^{10,16,17} This is so because, in their culture, uterus is given much importance due to its being taken as a divine sign of femininity.^{10,16,17} So, this adds to the increased rate of morbidity and mortality in female population in African countries.^{10,16,17}

In Western countries, specific conservative surgical treatment options have been discovered that are being used instead of hysterectomy.¹⁴ These procedures include trans-cervical resection of the endometrium, laser ablation of endometrium and embolization of the uterine artery.¹⁴ Unluckily, in Pakistan, these newer treatment options are not available until now.¹⁴ Therefore, in Pakistan, the rate of hysterectomy is quite high as compared to developed countries.¹⁴ This is also because of the reason that hysterectomy is the only surgical option available here for so many gynecological diseases.^{10,14} Fibroids are reported to be the most frequent indication for hysterectomy.¹⁶ About one-third of all the hysterectomies done throughout the world is for the fibroids.¹⁶ The second most common indication for hysterectomy is abnormal uterine bleeding.¹⁶ It accounts for about 16% of hysterectomies.¹⁶ Gynecologic malignancies are rare indications for hysterectomy.¹⁶ Female genital tract malignancies account for about less than 8% of all hysterectomies performed in gynecology units.¹⁶ So, Fibroids and abnormal uterine bleeding are common indications of hysterectomy while gynecologic malignancies are the less common indication.¹⁶

As far as histopathological examination of hysterectomy specimens is concerned, there is a broad spectrum of histopathological lesions encountered in the hysterectomy specimens.¹⁰ The histopathological evaluation of the hysterectomy specimens not only helps in making the final diagnosis of the uterine pathology but also proves helpful in deciding the further management of the patients after hysterectomy is performed.⁹ The histopathological evaluation is considered to be very important because, in some instances, the uterus specimen may look healthy on naked eye examination. However, when they are examined under microscope, there appears to be significant underlying lesion in the specimen.⁹ In the

same way, the benign lesions in tissue specimens may sometimes show foci of malignant disease on microscopic examination.⁹ Keeping in mind these diverse possibilities, it is suggested that every hysterectomy specimen should be sent for histopathologic review.¹⁴ This is important because the pre-operative diagnosis that is made on clinical grounds is confirmed based on histopathological examination of the hysterectomy specimens.

Although hysterectomy is a commonly performed surgical procedure,⁵ however, it is known to be associated with certain complications and risks.⁵ The complications associated with hysterectomy include post-operative fever, bleeding from the wound site, secondary infection of the wound, and development of hematoma in pelvis and perineum.⁵ Operation related complications comprise of traumatic injuries to the urinary bladder and ureters.⁵ The late complications associated with hysterectomy include vault prolapse and adhesions in the intestines.⁵ The estimated mortality rate associated with hysterectomy is about 0.5-2/1000 females.¹⁴

The present study was done to correlate the indications of elective hysterectomy with the histopathological diagnoses, thus determining the percentage of the pre-operative clinical diagnoses that were confirmed on histopathological examination. This study will highlight the significance of subjecting each specimen for histopathological examination.

MATERIALS AND METHODS

It was a retrospective, descriptive study. It was conducted in the Department of Obstetrics and Gynecology, Mercy Teaching Hospital. Mercy Teaching Hospital is affiliated with the Peshawar Medical College. The study was done from 1st January 2011 to 31st December 2013 (a total of three years' duration). The study population included all the female patients who were subjected to elective hysterectomy during the study period. Patients who underwent emergency obstetric hysterectomy for ruptured uterus or severe postpartum hemorrhage and those whom vaginal hysterectomy were excluded from the study. Data about age sign symptoms, indications for surgery, and histopathological diagnosis was recorded from patient's files and noted down in a proforma. The pre-operative clinical diagnosis was compared with the final postoperative histopathological report and results were drawn accordingly. Mean, and the stan-

dard deviation was used for quantitative data like age. Frequency and percentages was used for qualitative data like gender and diagnosis.

RESULTS

A total of 131 females underwent elective abdominal hysterectomy during the study period. Age of the study sample ranged from 35-75 years with a mean of 49±19 years

Table 1: Clinical indications for abdominal hysterectomy in 131 cases.

Indications/Pre-operative diagnosis	n (%)
Fibroid	55(41.98%)
Dysfunctional uterine bleeding (DUB)	35(26.72%)
Endometrial hyperplasia	12(9.16%)
Ovarian cyst	9(6.87%)
Adenomyosis	8(6.10%)
Pelvic inflammatory diseases (PID)	5(3.82%)
Postmenopausal bleeding	3(2.92%)
Hydatidiform mole	2(1.52%)
Cervical cancer	2(1.52%)

Table 2: Concordance rate of "pre-operative diagnosis" and "histopathological diagnosis" in 131 cases undergoing abdominal hysterectomy

Pre-operative diagnoses: (n)	Cases having the same diagnosis as pre-operative diagnosis on histopathological evaluation= (n)	Confirmation rate (%)
Fibroid : (55)	49	89.1%
Dysfunctional uterine bleeding (DUB): (35)	28	80%
Endometrial hyperplasia: (12)	10	83.3%
Ovarian cyst: (9)	9	100%
Adenomyosis: (8)	6	75%
Pelvic inflammatory diseases (PID): (5)	3	60%
Postmenopausal bleeding: (3)	3	100%
Hydatidiform mole: (2)	2	100%
Cervical cancer : (2)	2	100%
Total : (131)	112	85.49%

Table 3: Comparison of inconsistency between “pre-operative diagnosis” and “histopathological diagnosis” in 131 cases undergoing abdominal hysterectomy

Pre-operative diagnosis (inconsistent with histopathological diagnoses): (n)	Histopathological diagnoses: n (%)
Dysfunctional uterine bleeding : (7)	Fibroid uterus with adenomyosis:2(28.57%)
	Adenomyosis:1(14.28%)
	Fibroid:1(14.28%)
	Endometrial polyp:1(14.28%)
	Chronic endometritis:2(28.57%)
	TOTAL:7 (100%)
Fibroid: (6%)	Endometrioma:1(16.66%)
	Adenocarcinoma in situ: 2(33.33%)
	Endometrial polyp:1(16.66%)
	Superficially invasive adenocarcinoma with squamous metaplasia cervix: 1(16.66%)
	Simple cyst hyperplasia:1(16.66%)
	TOTAL:6(100%)
Pelvic inflammatory diseases: (2)	Endometriosis: 2(100%)
Adenomyosis: (2)	Chronic nonspecific endometritis with cervical intraepithelial neoplasia:1(50%)
	Chondrosarcoma metastatic to endometrium:1(50%)
	TOTAL:2(100%)

Table 4: the Mortality rate of elective abdominal hysterectomy in 131 cases

Total number of surgeries performed	Total number of deaths due to surgery	Mortality rate
131	0	0%

DISCUSSION

The first hysterectomy procedure was done in England in 1843 by Charles Clay.³ It was after the year 1901 that hysterectomy was regarded as the definitive treatment for many benign and malignant conditions of the female reproductive tract.^{1,3,4,13,16}

Now, hysterectomy has become the procedure that is being done very commonly in majority of the gynecology units throughout the world.^{1,8,18} Although the procedure is known to be associated with certain complications, yet it is still regarded as an effective treatment option, especially in cases where the conservative treatment does not work, or they cannot be used to due intolerance of side effects on the part of patient.^{13,19}

It is quite evident that after this procedure is done, the female becomes unable to give birth to children anymore.³ Also, there are certain complications associated with the procedure.³ Therefore, this surgery is advised by consultants as a last resort, and only when other treatment options have failed and female has completed her family.³ As far as nonmalignant uterine disorders are considered, it is expected that the frequency of hysterectomies can decrease if alternatives treatment options are made available in Pakistan in the coming days.³

Usually, the indication for which hysterectomy is done is confirmed by sending the specimen of the uterus for histopathological evaluation.^{1,4} It is not uncommon that the uterus seems reasonable on the naked eye examination, but when the uterus specimen is examined under the microscope, there are significant pathological lesions in it.⁴ The histopathological evaluation can tell about the grade of tumor in the specimen.⁴ This, in turn, helps decide further management of patients and also tells about the prognosis.⁴ On the other hand, there are certain cases where a patient may be falsely suspected of having malignancy of the female genital tract. However, sending specimen for histopathological evaluation rules out the malignancy.⁴ So, the histopathological evaluation is not only crucial for making diagnosis of a condition but also helps to rule out certain conditions. Both aspects are equally crucial from a patient’s point of view. So, sending the hysterectomy specimens for histopathological evaluations is of diagnostic and ethical importance.^{4,13}

In the present study, the mean age of the study sample was 49±19 years. Sivapragasam and Nyirahabimana reported the mean age of 50 years and 49 years in their studies, respectively.^{1,10} Naheed K from Lahore reported the mean age of 45 years in her study done in 2018.⁴ Oseki C from Nigeria reported the mean age of 44.5 years in his study.⁵ Sreedhar V from

Saudia Arabia reported the mean age of 44 years in his study.³ Similar age group was reported in different studies done in India and Pakistan.^{6,9,13,18,20,21,22} So the age distribution of the study sample in the present study was similar to those reported in different local and international studies done so far.

In the present study, it was found that the most common indication for hysterectomy was fibroid uterus (which was seen in 41.98% cases), followed by dysfunctional uterine bleeding (seen in 26.72% cases). The least common indication in the present study was found to be cervical cancer (which was seen in 1.52% cases). So, in the present study, the nonmalignant lesions of the uterus were common as compared to malignant lesions. Similar data were reported in a study done by Naheed K from Lahore in 2018, in which fibroid uterus was the commonest indication (seen in 35% cases), followed by dysfunctional uterine bleeding (15% cases), and cervical polyp being the least common indication (seen in 3% cases) for hysterectomy.⁴ Nyirahabimana from Rwanda reported fibroid uterus to be the commonest indications for hysterectomy in his study done in 2018.^{3,10} Similar findings are suggested in other local and international studies done so far.^{2,5,6,7,9,20,21,22,23,24} However, Sivapragasam reported abnormal uterine bleeding to be the commonest indication for hysterectomy in his study done in 2018.¹ Sreedhar V from Saudia Arabia also reported abnormal uterine bleeding to be the commonest indication for hysterectomy in his study.³ All these studies suggest a common finding that hysterectomy is commonly carried out for benign uterine lesions as compared to malignant lesions.

In the present study, it was found that indications for hysterectomy comprised mainly of benign conditions, while malignant disorders were rare. Similar findings were reported by Nyirahabimana in his study in 2018.¹⁰ Malignant lesions were also the least common in a study done by Raheel from Pakistan.¹⁸ Sreedhar V also reported similar findings from Saudi Arabia in 2016.³ Similar data are reported in studies done by Naheed K in 2018 from Lahore and Gupta G from India.^{4,25} Similar findings are suggested in other local and international studies done so far.^{2,6,9,20,21,23,24}

When data regarding histopathological diagnosis was analyzed in the present study, it was found that

the histopathological report was consistent in 89.1% of the cases of fibroid uterus. Diagnosis of dysfunctional uterine bleeding was confirmed in 91.4% cases and that of endometrial hyperplasia in 83.3% in the present study. However, there were two cases each of cervical cancer and hydatid form mole and both of these were confirmed on histopathological examination of the hysterectomy specimens. This showed that the most frequent histopathological diagnoses were fibroid uterus, followed by dysfunctional uterine bleeding and endometrial hyperplasia. The overall concordance rates between pre-operative clinical diagnosis and histopathological diagnoses were 85.49% in the present study. In a study done by Nyirahabimana in 2018 throughout two years duration, it was reported that fibroid was the most frequent histopathological diagnosis in cases of hysterectomy, the finding same as that reported in the present study.¹⁰ However, the second most frequent diagnoses were malignant lesions in that study, which is opposite to the present study where malignant lesions were the least common diagnosis. A similar pattern of diagnoses was reported in other local and international studies.^{6,7,7,20,21,22} However, in a study done by Sinapragasam in 2018, abnormal uterine bleeding was the most frequent histopathological diagnosis followed by fibroid uterus, while Adenomyosis was the least essential diagnosis.¹

In the present study, the correlation between clinical diagnosis and histopathological diagnoses was seen in majority of the cases (about 85.49% of the cases). This means that in about 24.51% of the cases, histopathology review made it possible to clinch the actual diagnosis, which was missed initially. Similar findings are reported in a study done by Nyirahabimana in 2018, which reports that the indications were consistent with histopathological diagnoses in about 83% of the cases.¹⁰ In a study done by Jaleel R from Pakistan, it was shown that indications were consistent with histopathological diagnoses in about 85% of cases.¹⁸ These figures are highly similar to those reported in the present study. In the present study, consistency rate was high for ovarian cyst, cervical cancer, hydatid form mole while low for fibroids, abnormal uterine bleeding, and Adenomyosis and pelvic inflammatory diseases. Similar data are reported by Jaleel R from Pakistan in his study, where a high confirmation rate was observed for ovarian cysts and cervical dysplasia,

whereas low rates were seen for dysfunctional uterine bleeding.¹⁸ However, rates of consistency were high for Adenomyosis in his study.¹⁸ This may be because of the availability of the MRI facilities their setup, which is regarded as the gold standard diagnostic tool for Adenomyosis. The confirmation rate was 90% in a study conducted by Gangadharan V in India in 2016.²⁶ This rate is high as compared to that reported in the present study. However a lower figure of 74 % was reported in studies done by Naheed K in 2018 from Pakistan and Gupta G from Indian.^{4,25} Thus, it is evident that sending hysterectomy specimens for histopathological evaluation is mandatory in order to confirm final diagnosis.

A fibroid is a benign disorder of the uterus.³ The lesion arises from myometrium, which is the muscle layer of the uterus.³ These patients present with painful menstrual cycles [w, y]. There is also an associated massive blood loss during menstruation.^{3,16} The fibroids may increase in size gradually, and thus put pressure on the urinary bladder.³ This leads to an increased frequency of urination.³ In rare cases, females present with pain during intercourse, which is called dyspareunia.³ It is now a well-established fact that the risk of developing fibroids increases in those females who have a positive family history of fibroids.³ Also the obesity and increased intake of red meat have been associated with increased risk of developing fibroids in females.³ Usually, no treatment is required in mild cases of fibroids.^{3,16} However, the gonadotropin releasing hormone analogs may prove to be helpful in reducing the size of the fibroids.³ However, the problem is that these drugs are costly and are associated with severe adverse effects.³ When conservative treatment fails, then surgical removal of fibroids is done.^{3,16}

Abnormal uterine bleeding is a gynecological disorder in which there are irregular bouts of bleeding from the uterus without any apparent pelvic disorder.³ It is believed to be caused due to abnormal responses of uterus to female reproductive hormones.³ Abnormal bleeding may present in different ways, i.e. either the volume of the blood loss may be too much or the duration of the bleeding may be prolonged beyond normal.³ It is reported in literature that about 1-2% of females who suffer from abnormal uterine bleeding may develop endometrial carcinoma with time.³

The mortality rate of hysterectomy in the present study was 0%. A large study was done in the United Kingdom that analyzed the mortality rate in about 37,298 females who underwent hysterectomy.²⁷ The study showed that mortality rate from hysterectomy was 0.38 per 1000.²⁷ In another study done by Bhatti K from Khairpur showed that there was no mortality associated with hysterectomy.¹⁴ Another study was done in Nigeria in 2018 also showed that the mortality rate was 0% in that study.⁵ Similar findings were suggested by Onyeabochukuru.¹³ These findings suggest that that hysterectomy is a safe procedure in terms of mortality.

The present study also shows that there is a high incidence of benign disorders of the female genital tract in our setup. There was a durable consistency in clinical diagnoses, and histopathological diagnoses in the present study and same findings were reported by many local and international studies done so far.

Recently, researchers are working to discover specific treatment options or drugs that can replace the invasive procedure of hysterectomy.¹⁶ Newer drugs like aromatase inhibitors and progesterone receptor modulators are being studied by the researchers in this regard.¹⁶

CONCLUSION

There is a strong correlation between clinical diagnosis and histopathological diagnosis in our setup. Hysterectomy is justified when the histopathological diagnosis is consistent with the preoperative clinical diagnosis. So, it is mandatory that every hysterectomy specimen should be sent for histopathological evaluation. The study also showed that the incidence of benign lesions in the hysterectomy specimens is more common than the malignant lesions. The study thus highlights the fact that histopathological evaluation of hysterectomy specimens is of clinical and ethical importance. It also helpful in reassurance and further management of patients.

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