International Journal of Reproduction, Contraception, Obstetrics and Gynecology
Shanmukhi VB et al. Int J Reprod Contracept Obstet Gynecol. 2023 Jul;12(7):2145-2150
www.ijrcog.org
pISSN 2320-1770 | eISSN 2320-1789

DOI: https://dx.doi.org/10.18203/2320-1770.ijrcog20231925

Original Research Article

Revisiting indication for hysterectomy according to PALM-COEIN classification and its correlation with histopathological examination reports

Vazeer Bhavya Shanmukhi[1]*, M. Vijaya Sree[2]

[1]Department of Obstetrics and Gynecology, PG-3, Mamata Medical College, Khammam, Telangana, India
[2]Department of Obstetrics and Gynaecology, Mamata Medical College, Khammam, Telangana, India

Received: 29 April 2023
Accepted: 02 June 2023

***Correspondence:**
Dr. Vazeer Bhavya Shanmukhi,
E-mail: bhavyashanmukhi@gmail.com

ABSTRACT

Background: Hysterectomy is most common major gynaecological surgery. AUB is commonest indication for hysterectomy. Hysterectomy is done when medical/minimally invasive treatment methods fail. It provides permanent relief of symptoms and patient satisfaction. Aim of this study was to correlate the clinical preoperative diagnosis and histopathological findings of cases which needed abdominal hysterectomy.
Methods: This prospective study was conducted in Department of OBG at Mamata general hospital, Khammam, during December 2020 to December 2022. The patients were diagnosed based on history, clinical examination and ultrasonography reports. Patients with frank malignancies and uterine prolapse were excluded. Hysterectomy was done wherever it is indicated and the specimens were sent for histopathological examination (HPE). HPE reports were correlated with preoperative indication for hysterectomy.
Results: In this study 50 patients who underwent abdominal hysterectomy were studied. Data was recorded in terms of demographics, clinical features, indications of the hysterectomy and histopathological findings. It was observed that, most common clinical diagnosis was leiomyoma [21 women (42%)]. Among these 21 women, histopathological findings of 4 women were different (adenomyosis in 2 cases and unremarkable myometrium in 2 cases). Leiomyoma in myometrium, chronic papillary endocervicitis in cervix, hydrosalpinx in fallopian tubes and simple serous cysts in ovaries were the commonest histopathology noted.
Conclusions: Hysterectomy is most widely performed major gynaecological operation and histopathology is mandatory for confirming diagnosis and management. With the improvement in the different treatment options for AUB, hysterectomy in benign disease should only be done when all the other conservative options fail.

Keywords: AUB, Histopathological findings, Hysterectomy, Indication, Leiomyoma

INTRODUCTION

Hysterectomy is the most commonly performed major operation in gynaecology.[1] It is considered as the definitive treatment for various benign pelvic pathologies like leiomyoma, dysfunctional uterine bleeding (DUB), chronic pelvic pain, endometriosis, adenomyosis, uterovaginal prolapse and in some cases of genital tract malignancies.[2] Abnormal uterine bleeding (AUB) is commonest indication for hysterectomy. Patient is said to have AUB when her menstrual flow deviates from the normal amount (when excess called as menorrhagia), duration, regularity, or frequency.[3] The International Federation of Gynecology and Obstetrics (FIGO) has

given a classification system for AUB, referred to by the acronym PALM-COEIN. PALM consists of structural abnormalities whereas COEIN includes conditions that are unrelated to structural abnormalities. The increase in the number of hysterectomies in recent times may be due to premenopausal menorrhagia, mild genital prolapse, prophylaxis against uterine cancer.[4] According to Dicker, Hysterectomy should be performed when the risk of preserving the uterus is greater than the risk of it's removal or when there are disabling symptoms for which there is no successful medical treatment.[5] Hysterectomy should never be done without proper indications. Even for menorrhagia, hysterectomy should not be performed as a first hand management without a trial of medical treatment. It is done only when medical or minimally invasive treatment methods fail. It provides permanent relief of symptoms and improves patient's quality of life.

The improved hospital care, availability of blood transfusion, advanced anesthesia and above all the advent of antibiotics has opened up a new era and thereby broaden the indications for hysterectomy with minimum postoperative morbidity and mortality.[6]

Histopathological analysis of the hysterectomy specimens is mandatory for confirmation and to assess the pattern of lesions common in the uterus and adnexa, in a particular population.[7] HPE is of utmost important in patients with genital cancer, where the adjuvant treatment is dependent upon the grade and extent of the invasion of the disease.[8] In developing countries like India, because of the limited facilities and economical constraints, diagnosis of the cases are made more on the clinical grounds rather than on the modern investigations. Therefore the intra operative and histology findings often, may not co-relate with preoperative diagnosis.

The present study aims to study the indications for hysterectomy and to highlight the correlation between indications and histopathological evaluation of hysterectomy specimens. This helps to determine if hysterectomy was indeed essential for the patient and if any lacunae exists in preoperative evaluation so as to individualise the treatment and provide better patient care in future.

METHODS

This was a prospective study conducted in the Department of Obstetrics and Gynecology at a tertiary care center, Mamata general hospital, Khammam, Telangana, India, during the period December 2020 to December 2022. Patients within age range of 40-70yrs with benign gynecological conditions and failed medical treatment were included in our study. Patients with frank malignancies and uterine prolapse were excluded. A total of 50 women undergoing total abdominal hysterectomy for benign gynecological conditions were studied. The patients were diagnosed based on history, clinical examination and ultrasonography reports. Indications for the procedure were documented according to PALM-COEIN classification system. Hysterectomy done and the specimens were sent for histopathological examination (HPE). The HPE reports were analyzed and correlated with preoperative indication for hysterectomy.

RESULTS

Among 50 patients who underwent hysterectomy, majority i.e., 35 (70%) patients were in the age range of 40 to 45 years with mean age of 44.9 years. Most of them [41 women (82%)] were multiparous and 2 women (4%) were nulligravidas (Table 1).

Table 1: Distribution of patients according to demographic data.

Demographic data	No. of patients (%), n=50
Age group (years)	
40-45	35 (70)
46-50	11 (22)
51-55	2 (4)
56-60	1 (2)
>60	1 (2)
Total	50 (100)
Parity	
0	2 (4)
1	7 (14)
2	29 (58)
>/= 3	12 (24)
Total	50 (100)

Most common clinical presentation was excessive, irregular or frequent bleeding problems [25 (50%)] followed by severe dysmenorrhoea [9 (18%)], post-menopausal bleeding [5 (10%)], excessive white discharge [3 (6%)], mass per abdomen [3 (6%)], dyspareunia [3 (6%)] and pelvic pain [2 (4%)] (Table 2).

Table 2: Distribution of patients according to clinical presentation.

Clinical presentation	No. of patients (%), n=50
Menorrhagia	25 (50)
Dysmenorrhoea	9 (18)
Post menopausal bleeding	5 (10)
Excessive white discharge	3 (6)
Mass per abdomen	3 (6)
Dyspareunia	3 (6)
Pelvic pain	2 (4)
Total	50 (100)

Most common indication for hysterectomy was leiomyoma uterus (AUB-L) seen in 21 women (42%) followed by endometrial pathology (AUB-E) seen in 8 (16%) women and adenomyosis (AUB-A) seen in 7 (14%)

women (Table 3). None of the hysterectomies were done for AUB-C, AUB-I and AUB-N.

Table 3: Distribution of patients according to indication for hysterectomy (according to PALM-COEIN classification system).

Indication for hysterectomy (acc. to PALM-COEIN classification system).	No. of patients (%), n=50
Polyp (AUB-P)	1 (2)
Adenomyosis (AUB-A)	7 (14)
Leiomyoma (AUB-L)	21 (42)
Malignancy/premalignant lesions (AUB-M)	4 (8)
Coagulopathy (AUB-C)	0
Ovulatory dysfunction (AUB-O)	3 (6)
Endoomerial (AUB-E)	8 (16)
Iatrogenic (AUB-I)	0
Not yet classified (AUB-N)	0
Combined indication	
AUB-L and AUB-A	3 (6)
AUB-P and AUB-A	1 (2)
AUB-L and AUB-P	1 (2)
AUB-P and AUB-E	1 (2)
Total	50 (100)

Among 50 women who underwent total abdominal hysterectomy (TAH), in 21 (42%) women bilateral salpingo-oophorectomy (BSO) was done and in 10 (20%) women unilateral salpingo-oophorectomy (USO) was done (Table 4).

On Histopathological examination, the commonest pathology was found to be chronic cervicitis [41 (82%)] followed by papillary endocervicitis [29 (58%)] in cervix, leiomyoma [25 (50%)] followed by Adenomyosis [8 (16%)] in myometrium, endometrial hyperplasia [4(8%)] in endometrium, hydrosalpinx [8 (16%)] and paratubal cyst [8 (16%)] in fallopian tubes and serous cystadenoma [5 (10%)] in ovaries (Table 5).

The clinical diagnosis correlated (80%) well with histopathological diagnosis (Table 6). Only 20% were not correlated with HPE.

Table 4: Distribution of patients according to type of TAH.

Type of TAH	No. of patients (%), n=50
TAH alone	19 (38)
TAH with USO	10 (20)
TAH with BSO	21 (42)
Total	50 (100)

Table 5: Histopathological findings of hysterectomy specimens.

Histopathological examination	Histopathological findings	No. of patients
Cervix	Chronic cervicitis	41
	Papillary endocervicitis	29
	Metaplastic changes	15
	Nabothian cyst	12
	CIN -1/2/3	3
Endometrium	Endometrial polyp	4
	Endometritis	3
	Simple endometrial hyperplasia with atypia	2
	Simple endometrial hyperplasia without atypia	2
	Atrophic endometrium	1
Myometrium	Leiomyoma	25
	Adenomyosis	8
	Adenomyosis and leiomyoma	3
Fallopian tubes	Paratubal cysts	8
	Hydrosalpinx	8
	Salpingitis	1
Ovaries	Serous cystadenoma	5
	Ovarian endometriosis	2
	Mucinous cystadenoma	1
	Ovarian fibroma	1
	Follicular cysts	1
	Corpus leuteal cysts	1

Table 6: Correlation of Indications of hysterectomy (PALM-COEIN) and histopathological diagnosis of hysterectomy specimens.

Clinical indication for hysterectomy	No. of patients (%) n=50	Histopathological diagnosis	No. of patients (%) n=50	Correlation (yes/no)
AUB-P	1 (2)	Leiomyomatous polyp	1 (2)	100% correlation
AUB-A	7 (14)	Adenomyosis	3 (6)	57.1% of AUB-A was correlated with HPE
		Unremarkable myometrium	2 (4)	
		Leiomyoma	1 (2)	

Continued.

Clinical indication for hysterectomy	No. of patients (%) n=50	Histopathological diagnosis	No. of patients (%) n=50	Correlation (yes/no)
		Adenomyosis and leiomyoma	1 (2)	
AUB-L	21 (42)	Leiomyoma	16 (32)	80.9% of AUB-L was correlated with HPE
		Adenomyosis	2 (4)	
		Unremarkable myometrium	2 (4)	
		Adenomyosis and leiomyoma	1 (2)	
AUB-M	4 (8)	Simple atypical hyperplasia	1 (2)	3/4th of AUB-M was correlated with HPE
		Moderate dysplasia cervix	1 (2)	
		Endometritis and endocervicitis	1 (2)	
		Cervical erosion with reactive atypia and squamous metaplasia	1 (2)	
AUB-O	3 (6)	Simple serous cystadenoma	1 (2)	100% correlation with HPE
		Mucinous cystadenoma	1 (2)	
		Follicular cysts	1 (2)	
AUB-E	8 (16)	Endometrial polyp	4 (8)	100% correlation with HPE
		Unremarkable endometrium	2 (4)	
		Simple atypical hyperplasia	1 (2)	
		Chronic nonspecific endometritis	1 (2)	
AUB-L and AUB-A	3 (6)	Leiomyoma	2 (4)	100% correlation with HPE
		Adenomyosis and leiomyoma	1 (2)	
AUB-P and AUB-A	1 (2)	Leiomyoma, cervicitis, unremarkable endometrium	1 (2)	Not correlating
AUB-L and AUB-P	1 (2)	Adenomatous endometrial polyp, unremarkable myometrium, cervicitis	1 (2)	100% correlation with HPE
AUB-P and AUB-E	1 (2)	Unremarkable endometrium and myometrium, endocervicitis, ovarian endometriosis, paratubal cysts, salpingitis	1 (2)	Not correlating

DISCUSSION

Hysterectomy is the most common gynecological surgery done worldwide. The indications to perform this major surgery should be justified and the pathology should be proved. This is so because the hysterectomy is surgery which has its own physical, economic, emotional, sexual and medical significance to the women.[7] Histopathological analysis of the specimens obtained is mandatory to evaluate the appropriateness of the hysterectomy.

The age of the patients in present study ranged from 40 to 68 years, with majority i.e. 46(92%) patients in the age range of 40 to 50 years. This is comparable to Sultana et al study which has majority (70%) of abdominal hysterectomies performed in age range of 41-50 years.[9] The current study's mean age is 44.9 years which is similar to Kanwardeep et al, Gupta et al and Kasinathan et al studies that had mean age of 45.2, 45.6 and 46.2 years respectively.[11,12,10] In present study most women (82%) were multiparous similar to Tara and Sneha study in which 94% of women were multiparous.[8]

In current study, most common clinical presentation was menorrhagia [25 (50%) women] followed by dysmenorrhoea [9 (18%) women] whereas Tara and Sneha study and Sultana et al study had menorrhagia in 61.8% and 71% women respectively followed by pain abdomen/ dysmenorrhea in 29.1% and 40% women respectively which is not comparable due to selection criteria.[8,9]

In present study, most common indication for abdominal hysterectomy in accordance with PALM-COEIN classification is uterine leiomyoma (AUB-L) seen in 42% women which is similar to many previous studies such as Tara and Sneha study (48.18%), Sultana et al study (52%), Siddiqui et al study (45.5%), Verma et al study (41%) and Kanwardeep et al study (43.7%).[8,9,3,7,11] None of the hysterectomies were done for AUB-C, AUB-I and AUB-N in this study similar to above studies.

Among 50 abdominal hysterectomies, most common procedure was TAH with bilateral salpingoophrectomy in 42% women followed by TAH alone in 38% women. TAH with bilateral salpingoophrectomy was found to be the commonest type of abdominal hysterectomy in various

previous studies such as Verma et al study (50.65%) and Kasinathan et al study (53.7%).[7,10]

In this study, on histopathological examination, the commonest pathology is chronic cervicitis [41 (82%)] in cervix, leiomyoma [25 (50%)] in myometrium, endometrial hyperplasia [4 (8%)] in endometrium and serous cystadenoma [5 (10%)] in ovaries. These are similar to Verma et al study (93% chronic cervicitis in cervix, 54.1% fibroid in myometrium, 4% endometrial hyperplasia without atypia and 8% simple serous cystadenoma in ovary) and various previous studies[6,3,9-11,7]

In our study overall majority of clinical diagnosis correlated (80%) well with histopathological diagnosis (Table 6) and only 20% were not correlated. This is comparable to most of the above studies such as Verma et al study, Kasinathan et al study etc.[7,11]

In current study the clinical indication of hysterectomy individually also correlated well i.e. 100% correlation with HPE seen in AUB-P, AUB-O, AUB-E and combined indication of AUB-L, A and AUB-L, P. Also 80.95%, 75% and 57.1% of indications AUB-L, AUB-M and AUB-A respectively correlated with the HPE report. Other combined indications such as AUB-P, A and AUB-P, E were not correlating to their histopathology reports which was not very much significant for our management.

In present study, clinical indication uterine fibroid (AUB-L), majority (80.95%) cases were confirmed on HPE, only 4 (19.05%) women were with different HPE report (2 with adenomyosis and 2 with unremarkable myometrium). This is similar to Kasinathan et al study (82.5% fibroid and 17.5% adenomyosis) and Sultana et al study (94.5% leiomyoma and 5.5% adenomyosis with chronic cervicitis).[10,9] Leiomyomas are benign uterine tumors which are commonly seen in women of reproductive age group and commonly present with increased menstrual bleeding which is due to increased vascularity, endometrial surface and altered uterine contractility and usually do not respond to hormonal therapy.[13,14]

In our study, indication malignancy/premalignant lesions (AUB-M), 3 women are correlating with HPE and only 1 woman is with different HPE report showing endometritis and endocervicitis. In most of the above mentioned studies indication dysfunctional uterine bleeding (DUB) was used which is almost obsolete terminology now a days, however their HPE reports showed endometrial atypical changes and proliferative endometrium and organic lesions by which hysterectomy was justified in their study.[7-11]

In this study, indication adenomyosis (AUB-A), majority (57.1%) of cases are confirmed on HPE, only 3(42.9%) women are with different HPE report (2 had leiomyoma and 1 had unremarkable myometrium) which is similar to Kasinathan et al study (77.7% adenomyosis, remaining leiomyoma).[10]

Combined indication of AUB-P, A showed leiomyoma, cervicitis and unremarkable endometrium and that of AUB-P, E showed only endocervicitis, ovarian endometriosis and unremarkable endometrium and myometrium in present study.

Overall in present study, none of the TAH specimens were with unremarkable pathology, thus justifying all the abdominal hysterectomies.

Revisiting the indications of hysterectomy in this study brought us to some of management options that can avoid hysterectomies such as polypectomy in AUB-P, mirena IUD for AUB-A, AUB-E, simple atypical hyperplasia (AUB-M), conisation/LEEP/LLETZ for moderate dysplasia cervix (AUB-M), myomectomy in AUB-L and use of oral contraceptive pills (OCPs) in AUB-O. However, there are various reasons for proceeding with hysterectomy in these patients that caught our attention such as: 1) Lower educational and socioeconomic status of patients because of which they are not able to afford continuous medical management as prescribed. 2) Patients not willing/accepting Mirena IUD in spite of counselling by gynaecologist. 3) Women from remote areas not having accessibility to gynaecologist/medical care for managing complications if any while they are on medical management and follow up. 4) Time constraint among doctor patient encounter leading to inadequate understanding of treatment options by patients. 5) Patient's worry related to minute benign USG findings such as simple functional ovarian cysts, small asymptomatic fibroids etc. 6) Thickened endometrium/polyp causing fear of carcinoma among patients and relations. 7) Lack of knowledge, availability, accessibility and inadequate training in minimally invasive procedures. 8) All the above reasons along with patient's/her peer pressure and doctor's distress may sometimes be the reason for proceeding with hysterectomy.

CONCLUSION

This study, similar to many previous studies, once again reminds the importance of histopathological analysis of the hysterectomy specimens. It also provides a correlation with the clinical and preoperative diagnosis according to PALM-COEIN and justifies the hysterectomy with their histopathological diagnosis. With the improvement in different management options for AUB such as polypectomy, Mirena IUD, LEEP, LLETZ, myomectomy and OCPs etc., hysterectomy in benign disease according to PALM-COEIN should only be done when all the other conservative treatment could not be opted for various reasons. Regular audit can help improve quality of health care services and provide sate conservative option to patients.

ACKNOWLEDGMENTS

Authors would like to thank Dr. M. Vijaya Sree, Professor and Head of the Department, Department of Obstetrics and

Gynecology, Mamata Medical College and General Hospital, Khammam for his support during study.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

REFERENCES

1. Dicker RC, Greenspan JR, Strauss LT, Cowart MR, Scally MJ, Peterson HB, et al. Complications of abdominal and vaginal hysterectomy among women of reproductive age in United States. Ame J Obstet Gynaecol. 1982;144:841-48.
2. Nausheen F, Iqbal J, Bhatti FA, Khan AT, Sheikh S. Hysterectomy: the patient's perspective. Ann Gyne. 2004;10(4):339-41.
3. Pathak DR, Agarwal S, Tiwari P, Kumar G. To study the clinical and histopathological findings on hysterectomy. Euro J Mole Clin Med. 2022;9(6):299-304.
4. Olsson JH, Ellstrom M, Hahlin M. A randomized prospective trial comparing laparoscopic and abdominal hysterectomy. Brit J Obstet Gynaecol. 1996;103(4):345-50.
5. Dicker RC, Scally MJ, Greenspan JR, Layde PM, Ory HW, Maze JM, et al. Hysterectomy among women of reproductive age: trends in the United States, 1970-1978. JAMA. 1982;248(3):323-7.
6. Khan R, Sultana H. How does histopathology correlate with clinical and operative findings in abdominal hysterectomy? J Armed Forces Med Coll. 2010;6(2):17-20.
7. Verma D, Singh P, Kulshrestha R. Analysis of histopathological examination of the hysterectomy specimens in a north Indian teaching institute. Int J Res Med Sci. 2016;4(11):4753-8.
8. Arya TS, Bhushan S. Histopathological analysis of uterus and appendages following total abdominal hysterectomy. MedPulse-Inter J Gynaecol. 2017;3(1):54-6.
9. Sultana SN, Sony AA, Pervin M, Hamid MA. Clinico-histopathological correlation of abdominal hysterectomy. Int J Reprod Contra Obstet Gynecol. 2022;11:2337-41.
10. Kasinathan A, Nagulapally H. A retrospective study on indications and histopathological analysis of non-oncological hysterectomies in a tertiary care hospital. Int J Reprod Contra Obstet Gynecol. 2020;9(12):5050-4.
11. iwana KK, Nibhoria S, Monga T, Phutela R. Histopathological audit of 373 nononcological hysterectomies in a teaching hospital. Pathol Res Internat. 2014;2014:1-5.
12. Gupta G, Kotasthane DS, Kotasthane VD. Hysterectomy: a clinico-pathological correlation of 500 cases. Int J Gynaecol Obstet. 2010;14(1):1-5.
13. Frances Jr H. Abdominal myomectomy as a treatment for symptomatic uterine fibrois. Obsteretic and gynaecology clinics North America. 1995; 22(4):781-9.
14. Abraham R. Uterine fibroid. Manual of clinical problems in obstetrics and gynaecology. 4th ed. 1994;227-229.

Cite this article as: Shanmukhi VB, Sree MV. Revisiting indication for hysterectomy according to PALM-COEIN classification and its correlation with histopathological examination reports. Int J Reprod Contracept Obstet Gynecol 2023;12:2145-50.