Histopathological Study of Hysterectomy Operations in A University Clinic in Tehran from 2005 to 2009

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Abstract

Objective: We intended to determine causes and histological pattern of hysterectomies in an Iranian population.

Materials and methods: Archived reports of pathology department of a university hospital dated March 2005 to March 2009 were retrospectively reviewed. Age, chief complaint, type of operation including abdominal, vaginal and subtotal hysterectomy, the indication of the operation and the pathology of the specimen were retrieved from the records.

Results: The average rate of hysterectomy was 219 per year. The average age of the patients was 49.6±11.3. About 40% of cases aged 45-54 years. The main chief compliant was abnormal uterine bleeding (62.2%). The leading preoperative indication for hysterectomy operations were uterine leiomyoma (24.8%) and then abnormal uterine bleeding and abdominal/pelvic mass. The most frequent pathologic findings were leiomyoma (22.0%) and adenomyosis (12.1%). In 11.8% of hysterectomy specimens no pathologic lesion was found.

Conclusion: The hysterectomy is rather common in Iran with age dependent pattern of indications and corresponding pathologies.

Keywords: Hysterectomy, Histopathology, Leiomyoma, Adenomyosis, Malignant lesions

Introduction

Hysterectomy is the second most frequent major operation after cesarean section among women (1). The most frequent indications of hysterectomy are uterine leiomyoma (or fibroid), abnormal uterine bleeding (AUB), pelvic support defects and endometriosis. The other indications are malignancies and endometrial hyperplasia, adenomyosis, cervical dysplasia, infections, postpartum bleeding and abnormal placental site (2).

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To the best of our knowledge, up-to-date data is lacking about underlying causes and histological pattern of hysterectomies in Iranian women. We reviewed the archived data of patients underwent hysterectomy operation in our center, a teaching referral university gynecology clinic, for five years to find out the clinical indication, type of operation and histological pattern of hysterectomies.

Materials and methods

In a retrospective study we reviewed the records of department of pathology, Imam Khomeini hospital, a university referral teaching center (Tehran University of Medical Sciences, Tehran, Iran). The data of all

hysterectomy operations were collected from March 2001 to March 2006. Age, chief complaint, type of operation including abdominal, vaginal and subtotal hysteretomy, the indication of the operation, the concurrent oophorectomy and the pathology of the specimen were retrieved from the records.

Statistical analyses

The data was analyzed in SPSS 15.0 for windows evaluation version (SPSS Inc. 1989–2006). Students't-test and one-way ANOVA test were used to compare the data of different hysterectomy groups. P values<0.05 were considered as statistically significant. Patients were categorized into 3 age strata: ≤44, 45-64, and ≥65 for further analyses.

Results

From 2001 to 2006, there were 1,095 hysterectomy operations in Imam Khomeini Hospital, Tehran, Iran. The average rate of hysterectomy was 219 per year. The average age of the patients was 49.6±11.3 years (25thpercentile: 42, median: 48, 75thpercentile: 55, 0.9% < 25and 3% > 75 years). Among all, 439 subjects (40.1%) aged 45 to 54 years.

Table 1 shows common chief complaints, clinical indication, and type of surgery in different age strata. Out of 1095 patients, the chief compliant and clinical indications were not registered or clearly defined in 63 and 71 subjects, respectively. In general, the main chief compliant was abnormal uterine bleeding (62.2%). The other complaints were abdominal mass (14.7%), and abdominal/pelvic pain (13.3%), protruding vaginal mass (77 cases, 7.5%), vaginal discharge, urinary retention, urinary incontinence, known malignancy of other organs, post-partum bleeding and trans-sexuality. Among patients aged less than 75 years, AUB was the main complaint, while with age increasing after 35, rate of uterine prolapse was increased whereas in women aged above 75 was the main chief complaint (34.8%) hysterectomy operations in subjects aged <65

Table 1: Presenting symptom, pre-operation diagnoses and the surgery route

Age <45 *n*=376	Presentation	AUB,242(69.7); Abdominal mass/distension,47(13.5);Pain,46(13.3); Prolapse,4(1.2); Other,8(2.3)
	Indication	leiomyoma,114(32); AUB,91(25.6); Abdominal/pelvic mass,71(19.9); Cervical lesion,42(11.8); Endometrial lesion,16(4.5); Prolapse,6(1.7); Trophoblastic disease,6(1.7); cancer of other viscera,3(0.8); obstetric emergencies,3(0.8); Endometriosis,1(0.3); other,3(0.8)
	Surgery	Total abdominal hysterectomy,288(89.2); Subtotal abdominal hysterectomy,33(10.2); Total vaginal hysterectomy,2(0.6)
Age 45-64 *n*=570	Presentation	AUB,342(63.3); Abdominal mass/distension,77(14.3); Pain,66(12.2); Prolapse,41(7.6); Other,14(2.6)
	Indication	leiomyoma,138(26.1); AUB,129(24.4); Abdominal/pelvic mass,95(18);Cervical lesion,64(12.1); Endometrial lesion,41(7.8);Prolapse,38(7.2); Trophoblastic disease,9(1.7); cancer of other viscera,9(1.7); ;Endometriosis,4(0.8);other,1(0.2)
	Surgery	Total abdominal hysterectomy,470(88.3); Subtotal abdominal hysterectomy,43(8.1);Total vaginal hysterectomy,19(3.6)
Age ≥65 *n* =149	Presentation	AUB,58(40); Prolapse,32(22.1); Abdominal mass/distension,28(19.3); Pain,25(17.2); Other,2(1.4)
	Indication	Abdominal/pelvic mass,49(35); Prolapse,32(22.9); Endometrial lesion,20(14.3); AUB,18(12.9); Cervical lesion,15(10.7); cancer of other viscera,4(2.9); leiomyoma,2(1.4)
	Surgery	Total abdominal hysterectomy,109(77.9); Total vaginal hysterectomy,22(15.7); Subtotal abdominal hysterectomy,9(6.4)
Total *n*=1095	Presentation	AUB,642(62.2); Abdominal mass/distension,152(14.7); Pain,137(13.3); Prolapse,77(7.5); Other,24(2.3)
	Indication	leiomyoma,254(24.8); AUB,238(23.2); Abdominal/pelvic mass,215(21); Cervical lesion,121(11.8); Endometrial lesion,77(7.5); Prolapse,76(7.4); cancer of other viscera,16(1.6); Trophoblastic disease,15(1.5); Endometriosis,5(0.5), obstetric emergencies,3(0.3); other,4(0.4)
	Surgery	Total abdominal hysterectomy,867(87.1); Subtotal abdominal hysterectomy,85(8.5);Total vaginal hysterectomy,43(4.3)

The data are frequency and percentages in parentheses

AUB: Abnormal uterine bleeding

Table 2: Pathologic diagnoses in different age strata

Age <45 *n*=376	Leiomyoma,110(29.3); Ovary malignant neoplasia,47(12.5); Adenomyosis,39(10.4); no pathological lesion,38(10.1); Leiomyoma and adenomyosis,35(9.3); Cervical dysplasia/cancer,31(8.2); Ovary benign neoplasia,24(6.4), Uterine malignant neoplasia,15(4); Endometrial polyp,10(2.7); Trophoblastic lesion,9(2.4); Endometrial hyperplasia,7(1.9); other viscera malignancy,3(0.8); other,8(2.1)
Age 45-64 *n*=570	Leiomyoma,127(22.3); Adenomyosis,72(12.6); No pathological lesion,63(11.1); Cervical dysplasia/cancer,58(10.2); Ovary benign neoplasia,57(10); Leiomyoma and Adenomyosis,57(10); Ovary malignant neoplasia,49(8.6); Uterine malignant neoplasia,42(7.4); Endometrial polyp,13(2.3); other viscera malignancy,10(1.8); Endometrial hyperplasia,9(1.6); Trophoblastic lesion,9(1.6); other,4(0.7)
Age ≥65 *n* =149	No significant pathological lesion,28(18.8); Ovary malignant neoplasia,27(18.1); Uterine malignant neoplasia,23(15.4); Adenomyosis,21(14.1); Ovary benign neoplasia,17(11.4); Cervical dysplasia/cancer,10(6.7); Endometrial hyperplasia,9(6); other viscera malignancy,4(2.7); Leiomyoma,4(2.7); Leiomyoma and Adenomyosis,4(2.7) ; Endometrial polyp,1(0.7) ;other ,1(0.7)
Total *n*=1095	Leiomyoma,241(22); adenomyosis,132(12.1); without significant pathological lesion,129(11.8); Ovary malignant neoplasia,123(11.2); Cervical dysplasia/cancer,99(9); Ovary benign neoplasia,98(8.9); Leiomyoma and Adenomyosis,96(8.8); Uterine malignant neoplasia,80(7.3); Endometrial hyperplasia,25(2.3); Endometrial polyp,24(2.2); Trophoblastic lesion,18(1.6); ; other viscera malignancy,17(1.6); other,13(1.2)

The data are frequency and percentages in parentheses
AUB: Abnormal uterine bleeding

were leiomyoma, abnormal uterine bleeding, and abdominal/pelvic mass. Abdominal/ pelvic mass was the leading preoperative diagnosis in the subjects aged ≥65 followed by uterine prolapse and endometrial neoplasia. Overall, the leading clinical indication of hysterectomy operations (preoperative diagnosis) was uterine leiomyoma (24.8%), followed by abnormal uterine bleeding (23.2%) and abdominal/pelvic mass (21.0 %). Total abdominal hysterectomy and vaginal hysterectomy operations were correspondingly the commonest operations in subjects under and over 65 years old. The commonest indications of total abdominal hysterectomy were uterine liomyoma and uterine prolapse. Overall, total abdominal hysterectomy was the main method of surgery. The most cases of subtotal abdominal hysterectomy were performed in subjects aged less than 35 years with obstetrical emergencies and endometriosis. Concurrent bilateral salpyngooforectomy and unilateral salpyngooforectomy were performed in 66.1% and 16.8% of cases in general and only in 4.7% and 4.7% subject operated vaginally.

The pathological diagnosis of hysterectomy specimens are shown in table 2. In general, the most frequent pathologies were leiomyoma (22.0%) and adenomyosis (12.1%). In 11.8% of hysterectomy specimens no pathologic lesion was found. In subjects aged <45 years the common pathologic diagnoses were leiomyoma, malignant neoplasia of ovary, and no significant pathology. The most diagnosis in subjects aged 45-65 years was leiomyoma followed by adenomyosis and no pathologic finding. The specimens with no significant pathology was more common in the subjects aged ≥65 years (28%), but more than 40% of the samples were malignant (18.1% ovary, 15.4% uterine 6.7% cervical, and 2.7% other visceral malignancy).

Malignancies were one of the main causes of hysterectomy in our study. The most frequent tumors were of ovarian malignancies (123 cases), cervical malignancy/dysplasia (99 cases) , benign ovarian neoplasm (98 cases), and malignant uterine neoplasm (80 cases). Gestational trophoblastic neoplasia was found in 18 subjects.

Among women with AUB the most frequent pathologic finding were leiomyoma and adenomyosis(53.2%). In subject complaining of uterine prolapse 59.7% no important pathology was found. The most frequent pathologic finding among patients with abdominal/pelvic mass was ovarian malignant neoplasm (40.1%).

Table 3 presents the final diagnoses of the most frequent pre-operation indications of the hysterectomies. Leiomyoma was confirmed in more than 92% of surgical specimens pathologically. The most common pathology causing AUB was adenomyosis (27.3%); in about 19% no pathology was found; and 4.6% were malignant. The pathologic

Table 3: Pathologic diagnoses in different age strata according to pre-operation diagnoses

leiomyoma	Leiomyoma,187(73.6); Leiomyoma and Adenomyosis,47(18.5); Adenomosis,10(3.9); No significant pathological lesion,5(2); Uterine malignant neoplasia,2(0.8); other viscera malignancy,1(0.4); other,2(0.8)
AUB	Adenomyosis,65(27.3); No significant pathological lesion,45(18.9); Leiomyoma,38(16); Leiomyoma and Adenomyosis,35(14.7); Endometrial polyp,16(6.7);Endometrial hyperplasia,12(5); Uterine malignant neoplasia,11(4.6); Ovary benign neoplasia,10(4.2); Trophoblastic lesion,1(0.4); Cervical dysplasia/cancer,1(0.4); other,4(1.7)
Uterine Prolapse	without significant pathological lesion,46(60.5); Adenomosis,16(21.1); Ovary benign neoplasia,4(5.3); Leiomyoma,3(3.9); Endometrial polyp,2(2.6); Ovary malignant neoplasia,1(1.3); Endometrial hyperplasia,1(1.3); other,3(3.9)
Abdominal/pelvic mass	Ovary malignant neoplasia,113(52.6); Ovary benign neoplasia,75(34.9); Adenomosis,8(3.7); Leiomyoma,5(2.3); Leiomyoma and Adenomyosis,5(2.3); Uterine malignant neoplasia,5(2.3); No significant pathological lesion,3(1.4)
Cervical lesion	Cervical dysplasia/cancer,95(78.5); No significant pathological lesion,12(9.9); Adenomosis,4(3.3); Leiomyoma,3(2.5); Leiomyoma ad Adenomyosis,2(1.7); Endometrial polyp,2(1.7); Ovary benign neoplasia,1(0.8); Uterine malignant neoplasia,1(0.8); Endometrial hyperplasia,1(0.8)

The data are frequency and percentages in parentheses
AUB: Abnormal uterine bleeding

report of majority (>60%) of subjects with uterine prolapse were normal. About 56% of subjects with abdominal/pelvic mass had malignancy. Among subjects operated for cervical lesion 78.5% had cervical dysplasia/cancer and 10 had no significant pathologic lesion.

Discussion

The results indicate that hysterectomy operations in the studied Iranian population are mainly performed due to leiomyoma, abnormal uterine bleeding and abdominal/pelvic mass. Malignancy was found in 56% of subjects with abdominal/pelvic mass and in about 5% of cases with abnormal uterine bleeding; but was negligible in those with leiomyoma as the pre-operation diagnosis. Pathologically, leiomyoma and adenomyosis were the most frequent diagnoses in hysterectomy specimens in an age dependent pattern with malignancy as the most frequent finding in the subjects aged 65 years and older.

According to the data of Centers for Disease Control (1994-1999) approximately 600,000 hysterectomies are performed annually in the United States, and an estimated 20 million U.S. women have had a hysterectomy. Women aged 40-44 years had a significantly higher hysterectomy rate compared with any other age group in the US and 52% of all hysterectomies were performed among women aged <44 years (3); similar to other reports (4,5). According to our data the majority of cases (40.1%) aged 45-54 years; 0.9% was younger than 25years and 3% was older than 75 years. In the United States, the number of hysterectomies performed each year, decreased gradually from 602,299 in1997 to 629,250 in 2000, 612,953 in 2003 and 573,592 in 2005 (6). Hysterectomy rates decreased about 1.9% per year between 1997 and 2005; no comparable results are present for Iran.

In this study AUB was the main chief compliant among women who underwent hysterectomy (62.2%), followed by abdominal mass (14.7%), abdominal/ pelvic pain (13.3%) and uterine prolapse (7.4%). Frequency of the uterine prolapse as the chief complain increased with age and was the commonest in subjects aged > 65 (22.1%). In a similar study in India, AUB was the main chief compliant (66%) (7).

According to National Hospital Discharge Survey (NHDS) data uterine leiomyoma is the most frequent diagnosis associated with hysterectomies in US accounting for about 32% among all women aged 18 and older and this was followed by abnormal uterine bleeding (16.6%), uterine prolapse (12.2%), endometriosis (11.9%), cancer (7.7%) and pain (7.1%) (6). In a similar study in Nigeria, in 330 cases of hysterectomy leiomyoma and uterine prolapse were the leading diagnosis in 48% and 17% of all cases respectively (8). In our clinic most frequent indications were leiomyoma (24.8%) and AUB (23.3%). Abdominal/ pelvic mass was the leading pre-operation diagnosis of approximately one third of cases ≥65 years.

In 2005 in a clinicopathological review of

hysterectomy that was done in Saudi Arabia uterine leiomyoma (25.8%) and adenomyosis (22.7%) were the most common pathological findings in hysterectomy specimens (9). In our series leiomyoma and adenomyosis were the commonest pathologies in 22% and 12.1% of cases respectively. Gynecologic malignancies were found in approximately 30% of all cases; in 11.8% of all hysterectomies no significant pathology was found. Our data indicate when the initial diagnosis is leiomyoma, the pathologic diagnosis would be leiomyoma in 3 out of 4 patients and the malignancy rate is negligible. In cases that the initial diagnosis is pelvic/abdominal mass, malignancy is common (56%). Also subjects with cervical lesion have most possibly cervical dysplasia/malignancy. AUB end to a diverse list of diagnoses including adenomyosis (27.3%), leiomyoma (16%); leiomyoma and adenomyosis (14.7%); endometrial polyp (6.7%) and endometrial hyperplasia (5%). Malignant uterine pathology cannot be excluded in these cases (4.6%).

This study suffers from the flails of other single center referral hospital-based studies. However this study provide baseline data to follow the trend of the hysterectomy operations and put insight into the pattern of the complaints and initial diagnoses leading to hysterectomy as well as the corresponding histopathological findings in the studied population.

Acknowledgment

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