Histopathological findings in hysterectomy specimens: A retrospective study

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ABSTRACT

This is a retrospective study of descriptive patterns of findings seen in hysterectomy specimens based on records from Modern - histopathology laboratory in Aden.

A total of 2,544 specimens were analyzed during the 6 year period from January 2006 to December 2012, to study the histopathological findings of these specimens. The age of the patients at hysterectomy ranged from 16-80 years with a mean of 44.6, maximum patients (56.3 %) in the age group 41-50 years and less patients in less than 30 years.

Most common pathology findings are, endometrial hyperplasia 1481 (58.3%), non neoplastic cystic lesion 1386 (54.5%), chronic cervicitis 1363 (53.6%), adenomyosis 793 (31.2%) followed by leiomyoma 697 (27.4%).

Other less frequent pathologies identified included atrophic endometrium, inadequate secretory endometrial transformation, gestational trophoblastic disease, endometroid adenocarcinoma, cervical prolapse.

This study confirms that benign pathologies are more common in hysterectomy specimens than their malignant counterparts.

Key words: **Hysterectomy, endometrial hyperplasia, ovarian cystic lesion, chronic cervicitis.**

Introduction

Uterus, a vital reproductive organ is subjected to many benign and malignant diseases. Many treatment options are available including medical and conservative surgical but hysterectomy still remains the most common gynaecological procedure performed worldwide (1).

The procedure is not well embraced in developing countries, thus, the clinical indications for the procedure should be justifiable, age and parity of the women (2).

In response to the consistent demand for this procedure, hysterectomy has been identified as a key health care indicator in recent reports, to measure and compare hospital performance (3).

It is the definitive cure for many of its indications which include dysfunctional uterine bleeding, fibroids, utero-vaginal prolapse, endometriosis and adenomyosis, pelvic inflammatory disease, pelvic pain, gynaecological cancers and obstetric complications. Ultimate diagnosis is only on histology, so every hysterectomy specimen should be subjected to histopathological examination (4).

In Yemen, histopathological examination of hysterectomy specimens carries diagnostic and therapeutic significance. Prevalence of uterine and adnexal pathologies varies from nation to nation and from region to region (5).

The present study is aimed at detailed histopathological evaluation of all lesions of hysterectomy specimens. It provides an intact uterus and consequent control over tissue sampling and hence enabling determination of origin of particular lesion and to compare the findings with other researchers.

Material and Methods

Our study was a retrospective descriptive work analysis of 2,544 patients with hysterectomy, over a period of 6 years from January 2006 to December 2012. The information was gathered regarding age, and histological diagnosis and was analyzed by excel program and tables performed according to the objectives of the study and compared to literature review.

Results

A total of 2,544 hysterectomy specimens between January 2006 to December 2012, were analyzed. The age range of the patients was 16 to 80 years, with a mean of 47.6 years.

Of these 2,544 cases, most of the cases were in the 41-50 years age group 1431(56.3%), which is the most common age group for contracting various diseases as shown in Table 1.

Table 1: Distribution of patients according to age groups

Age group (years)	No	%
< 30	50	2.0
31-40	535	21.0
41-50	1431	56.3
51-60	397	15.6
> 60	131	5.1
Total	2544	100

Table 2 reveals that out of the total hysterectomy specimens 1,481(58.3%) were endometrial hyperplasia, atrophied endometrium 396 (15.6%) Tumor was present in specimens out of which 10 was invasive complete hydatidiform mole, 45 were endometrial adenocarcinomas , malignant mixed mullerian tumour (MMMT) 6 (0.2%) cases and one case of choriocarcinoma.

Table 2: Histopathological findings in Endometrium hysterectomy specimens

Histopathology	No	%
Endometrial hyperplasia	1481	58.3
Atrophic endometrium	396	15.6
Gestational trophoblastic disease or hydatidiform mole (complete and partial mole)	222	8.7
Inadequate secretory endometrial transformation	216	8.5
Endometrial hyperplasia and Polyp	139	5.5
Endometroid adenocarcinoma	45	1.7
Endometritis	21	0.8
Invasive gestational trophoblastic disease	10	0.4
Atrophic endometrium with polyp	5	0.2
MMMT	6	0.2
Choriocarcinoma	1	0.04
Normal endometrium	2	0.08
Total	2544	100

Most common histopathological abnormality in myometrium was adenomyosis followed by leiomyoma. Adenomyosis in 793 (31.2%), followed by isolated leiomyoma was seen in myometrium of 697 (27.4%) hysterectomies, whereas in 163 (6.3%) myometria, both were present together. Tumor was present in specimens out of which 31 was invasive by malignant endometrial carcinoma as shown in Table 3.

Table 3: Histopathological findings in myometrium

Histopathology	No	%
Adenomyosis	793	31.2
Benign leiomyoma	697	27.4
Leiomyoma and adenomyosis	163	6.4
Invasion by malignant endometrial carcinoma	31	1.2
Chronic myometritis	12	0.5
Leiomyosarcoma	10	0.4
Normal	838	32.9
Total	2544	100

In Table 4 (next page) cervix from 2,377 (53.6%) specimens showed chronic cervicitis. Cervical intraepithelial neoplasia (CIN) I, CIN II, CIN III with chronic cervicitis (0.8%, 0.4, 0.3%) and flat condyloma (0.1%,0.6%), squamous cell carcinoma were seen in 22 specimens (0.9%) and adenocarcinoma were 17 cases. Uterovaginal prolapse were 132 cases (5.2%).

Unremarkable Histopathology of the cervix were 655 cases (25.7%).

2,087 ovarian specimens were retrieved from the computerized database of pathology department, from January 2006 to December 2013. There were 1,386 (54.4%) non-neoplastic functional cysts. The neoplastic were benign serous cystadenoma (2.5 %) and benign ovarian fibroma (0.9%), mucous cystadenoma (0.5%) and mature cystic teratoma (Dermoid cyst) 0.5%. The malignant were 21 cases serous cystadeocarcinoma , 9 cases of mucinous cystadeocarcinoma , 2 cases were undifferentiated carcinoma and 9 cases of metastatic carcinoma, as appears in Table 5 (next page).

Table 4: Histopathology of cervix

Histopathology	No	%
Chronic cervicitis	1363	53.6
Chronic cervcitis with CIN-I	21	0.8
Chronic cervicitis with CIN-II	9	0.4
Chronic cervicitis with CIN-III	8	0.3
Uterovaginal prolapse	132	5.2
Inflammatory endocervical polyp	37	1.5
Flat condyloma without dysplasia	72	2.8
Flat condyloma with CIN-I	4	0.1
Flat condyloma with CIN-II	15	0.6
Flat condyloma with CIN-II	1	0.04
Cervical Leiomyoma	21	0,8
Squamous cell carcinoma	22	0.9
Adenocarcinoma	17	0.7
No cervix	167	6.6
Normal	655	25.7
Total	2544	100

Table 5: Histopathology of ovaries

Histopathology	No	%
Non neoplastic cystic lesion	1386	54.5
Ovarian endometriosis	16	0.6
Ovarian fibroma	22	0.9
T.B Oopheritis	3	0.1
Ovarian Bilharziasis	2	0.1
Ovarian abscess	1	0.0
Ovarian hemangioma	1	0.0
Benign serous cystadenoma	63	2.5
Benign mucinous cystadenoma	13	0.5
Mature cystic teratoma (Dermoid cyst)	12	0.5
Malignant serous cystadeocarcinoma	21	0.8
Malignant mucinous cystadeocarcinoma	9	0.4
Granulosa cell tumor	6	0.2
Sertoli_Leydig cell tumor	3	0.1
Gonadoblastoma	2	0.1
Yolk sac tumor	1	0.04
Clear cell carcinoma	1	0.04
Benign transitional cell (Brunner) tumor	1	0.04
Non Hodgkin's Lymphoma	2	0.1
Undifferentiated carcinoma	2	0.1
Metastatic carcinoma	9	0.4
Normal	511	20.1
No ovaries	457	18
Total	2544	100

Discussion

Hysterectomy is the commonest gynecological operation and the rate of hysterectomy varies according to geographic distribution, patient and physician related factors (1). Hysterectomy is second only to cesarean section as the most frequently performed major operation in the United States. Approximately 600,000 hysterectomies are performed annually in the USA, and more than one third of US women have had a hysterectomy by the age of (6). In Pakistan, the rate of hysterectomy is quite high because it is the only surgical option available if patient is not responding to medical treatment(7). Many women in Africa and Nigeria in particular are reluctant to undergo this procedure because of the socio-cultural attachment to procreation and taboos associated with lack of menstruation(2). Few studies have been performed describing the pathologic findings in hysterectomy specimen and examining the relationship between the preoperative clinical indication and pathologic diagnosis (8).

In the present study, the mean age of patients was 47.6 years and age range from 16 to 80 years which was nearly similar to findings by others (7,9,10). The peak age for the procedure in our study was the fourth decade (41-50 years) as has been observed in other studies (9).

In the current work we found endometrial hyperplasia was the commonest histopathological finding with 58.3%. Lee (11) reported that endometrial hyperplasia was confirmed in 95%, a somewhat higher figure than we found and less results (16%) were found in Nepal by Ranabhatet al (5). Endometrial hyperplasia is either idiopathic or occurs due to associated diseases or conditions. It can also be transformed to endometrial carcinoma and patients with endometrial hyperplasia must be treated properly and carefully followed up (12). The exact pathogenesis of endometrial polyps is not fully elucidated, but they are thought to originate as a localized hyperplasia of the basalis, perhaps secondary to hormonal influences (13).

In our study the association between endometrial hyperplasia and hyperplastic endometrial polyp were 139 (5.5%) cases. This figure approaches that seen by Kelly et al (14) with (3.1%) in all cases of endometrial hyperplasia in his study period. Other studies have found that incidence of endometrial polyps in endometrial hyperplasia range between 11 and 29% (15).

In the present study we found atrophic changes in 396 cases (15.6%), approximate to that seen by Ranabhat et al (5) with 13% and that seen by Pity et al (16) from Iraq with 10.4 %. A higher figure was seen in a study by Thamilselvi et al (17) with 26%. This may justify by sample size in our study. Other authors were in discordance with our study, Gousia et al (18) reported 5.44%, and the results reported by Sarawathi et al (19) with 2.44%.

In the present study the inadequate secretory transformation were 216 (8.5%) cases, which was similar to other findings (20). It is higher than that seen by Zeeba et al (21) with 1.8% and higher than our result was reported by Sarfraz et al (22) with 24%.

Chronic endometritis is commonly seen in the reproductive age due to either retained products of conception, pelvic inflammatory diseases or other pregnancy related conditions. In our study 21 (0.8%) cases show chronic endometritis of all hysterectomy samples, which approximate the finding of Sajjad et al (23) which was 1% and lower than that seen by Ranabhat et al (5) which was 9.5%. We found in our study endometrial adenocarcinoma were in 45 patients (1.7%). This finding is similar to that found by others (5,16). But it was completely lower than those reported by Patel (24) from Australia 10.5%, and by Gebauer et al (25) from Germany with 16%.

Gestational Trophoblastic Disease (GTD) refers to a wide spectrum of interrelated conditions ranging from benign hydatidiform mole (HM), invasive mole to malignant choriocarcinoma (26). These regional variations have been reported with many speculative factors such as ethnic origin, blood group, age, parity, diet and nutrition, contraception, socio-economic status, immunologic factors and genetic constitution (27).In our study we found 222 (8.7%) cases of GTD of the total hysterectomies samples, only 10 cases were invasive gestational trophoblastic disease at the time of pathological diagnosis and one case of choriocarcinoma.

In the Kingdom of Saudi Arabia (KSA) fifty-nine cases of hydatidiform mole, 36 complete hydatidiform mole (CHM) and 23 partial hydatidiform mole (PHM) and 2 cases of choriocarcinoma were observed, out of 64,762 pregnancies registered at Security Forces Hospital, Riyadh, KSA, during an 11 year period (27). In a study in Nepal, there were 17 (37.8%) cases of hydatidiform mole, 6 (13.3%) of invasive mole and 22 (48.8%) patients of choriocarcinoma (28).

A malignant mixed Mullerian tumour (MMMT) of the uterine corpus is an extremely rare and aggressive malignancy, comprising only 1-2% of uterine neoplasms (29). In our study there was 6 (0.2%) cases of MMMT, in the study of Rajshekar only four cases of MMMT were diagnosed representing 20% of his sample (30) and this variation in the frequencies may support our justification related to sample size and study design.

In the current study adenomyosis was the commonest lesions of the myometrial pathology and represent 31.1% followed by leiomyoma 27.4%. Adenomyosis appears also to be the commonest pathology and similar to our findings reported by others (5,22,31).

The present study revealed that leiomyoma was also the commonest pathology and it was 27.4%. Reported frequencies vary in different countries and it was 26% in KSA (32), and 36% and in Kurdistan/Iraq (16), in Nigeria 48% (33) and 17% in India (34) and only 8% in Sweden (35). Some of the hysterectomy specimens show more than one lesion in the body of uterus, of which coexistence of adenomyosis and leiomyoma are the most common (34). In the present study there was 6.4% showing coexistence of adenomyosis and leiomyoma. In another study increasing to 56% when adenomyosis with concomitant leiomyoma are included (31) and it was 19% reported by Sarfraz et al (21) and 5.6% reported by Qamar et al (7). Leiomyoma was the commonest lesion of uterine corpus followed

by adenomyosis. This was similar to findings of other studies (16,32,33,36,37). Geographical and racial influences are thus apparent on the prevalence of uterine leiomyoma and the prevalence of risk factors in terms of quantities and type. Early menarche, delayed menopause, decreased parity, obesity and lack of exercise are some of the risk factors of leiomyoma (5).

Among the cervix uteri, chronic cervicitis was the main pathological finding in the present study and accounts for 53.6%. This figure is nearly similar to that reported by Jamal et al (36) which was 41.5% and to that reported by Qamar et al (7) which was 31%. A higher figure of chronic cervicitis seen in Nepal women by Jha et al was 96.4% (37); the variation may be related to different reproductive health procedures. In Yemen almost all males are circumcised which minimizes vaginal infection. In our study 37 (1.5%) cases show dysplasia of various degrees with chronic cervicitis and 20 (0.7%) cases show cervical condyloma with dysplasia.

A premalignant lesion, Cervical Intraepithelial Neoplasia (CIN) was seen in 3.0% in a study by Thamilselvi et al (17) and 0.8 % reported by Ranabhat et al (5). The low incidence of CIN in our study may be related to the reproductive life style, where the women are restricted to single sexual partner , while the CIN is more common with sexually transmitted disease of HPV, which is more frequent in multiple sexual partners women.

The diagnosis of uterovaginal prolapse was based on clinical as well as pathological findings (38). In our study hysterectomies done for utero-vaginal prolapse were found to be 132 (5.2%). This finding was higher than that reported by Pity et al (16) which was 2(0.5%), while less than the findings reported by Butt et al (39) with (11%) and less than 17% reported by Adelusola et al (33). The present study revealed only 0.9% of all the samples of hysterectomy show invasive squamous cell carcinoma at the pathological study. This finding was nearly similar to that reported by Ranabhat et al (5), Gousia RR et al (18) and Bani et al (40) which were 0.6%, 0.3% and 0.6% respectively. This low incidence may be related to reproductive health in Arab and Muslim countries where most of the women are restricted to one sexual partner and a Muslim habit for washing and vaginal douches after sexual intercourse and a high incidence of HPV infection in European countries play an important role in cervical dysplasia and carcinoma.

In the present study adenocarcinoma were 17 (0.7%) cases. Garud et al in 1981 described adenocarcinoma of cervix also carries a considerable percentage, i.e 15-20%, of all invasive carcinoma of cervix (41), while Sanyal et al (42) has noted it as 2% among all cervical lesions. The most common of lesions encountered in the ovary include functional or benign cysts and tumors and benign ovarian neoplasms occur at any age whereas malignant ovarian neoplasms are more common in the elderly (43,10).

Ovarian tumors are one of the major causes of gynaecological problems in females and present marked variation in their histological types. Relative frequency of these lesions is different for Western and Asian countries (10). We found in our current study, the most common pathological finding of the ovaries in all hysterectomy samples were benign (functional) cysts (54.4%). Our finding was nearly similar to that reported by Mansour (44) in KSA where the benign non neoplastic ovarian cysts comprise 47.5%, while the data from South East Asia shows that 90.5% of ovarian cysts were benign (45); less results were reported by Gupta et al (46) with 2.77% and 20% by Ranabhat et al (5).

Surface epithelial tumours were the major histological type of ovarian tumours followed by germ cell tumours and are the commonest ovarian cyst seen in most of the literature (8). In our study, the most common surface epithelial tumors was benign serous cyst adenoma 2.5% followed by mucinous cystadenoma 0.5% , which approximate the finding seen by Jha et al (37) with 4.5% for benign serous cystadenoma, 3.1% for mucinous cystadenoma and 25.7% of benign surface epithelial tumors were serous cyst adenoma and 6.7 % were mucinous cyst adenoma reported by Pity et al (16) in their study, which was lower than that seen by Abdullah et al (38) where serous cystadenoma represent 44.6% and mucious cystadenoma 13.6%. The low figure in our study may be related to last study sample, where we select only hysterectomy samples and exclude all cases with simple ovarian cystectomies.

In our study malignant serous cystadenocarcinoma were the most common malignant ovarian neoplasm and represent 0.8% of the cases followed by mucinous cystadeocarcinoma 0.4% and this figure approximates the data published by Jha et al (37) where 3.4% of his cases are malignant serous cystadenoma and 0.8% were malignant mucnous cystadenoma. The higher result with data published by the others, and it's 33.3% for malignant serous cystadenocarcinoma and 15.4% for malignant mucinous cystadenocarcinoma seen by Abdullah et al (38) and in Nepal malignant serous cystadenocarcinoma account 21.1% and 22.2% of malignant mucinous cystadenocarcinoma found by Jha et al (37) and the low figure in our study related to type of study sample. Approximately 95.0% of ovarian germ cell tumors are mature cystic teratomas in the western world (47).

In this study mature cystic teratoma (Dermoid cysts) account for 12 (0.5 %) of all ovarian tumors. A study in Pakistan (48) reported a high figure 38%. A mature cystic teratoma is a benign neoplastic ovarian lesion that occurs during reproductive life and is more common in young females during active reproductive life and usually treated by simple cystectomy and this may justify the low incidence in our study where the hysterectomy is the sample study and not ovarian cystectomy. Other ovarian tumours are rare in our study and it was 0.6% for ovarian fibroma which is similar to that reported by Jha etal (37) with 0.9%. Granulose cell tumor was 6 (0.2%) in our study and it is similar to other findings (37,49).

In the present study ovarian endometriosis accounted 16 (0.6%), which was similar to that seen by Gousia et al (17) with (0.61%). Also, our finding was less than that observed by Randabhat et al (5) which was 8.9% and less than that seen by Ahsan et al (30) with 13%. Ovarian endometriosis is a benign condition usually treated by simple ovariectomies, which justify the low figure in our study which is based on hysterectomy samples.

Conclusion

Hysterectomy still remains the widely used treatment modality even in developed countries. The ultimate diagnosis is only on histology, so every hysterectomy specimen should be subjected to histopathological examination. Histopathological analysis correlates well with the pre-operative clinical diagnosis for hysterectomy.

Most of the pathologies are still benign; malignancies are also detected on hysterectomy specimens, but very rarely. A yearly audit should be conducted in every institute to collect data and to analyze the pattern of indications and types of histopathological lesions and pattern of diseases.

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