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Clinical Presentations, Risk Factors and Type of Endometrial Cancer in Relation to Endometrial Thickness in Tumour Therapy and Cancer Research Centre Shendi University

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Abstract: *Background*: Endometrial cancer is the most frequent ontological pathology in postmenopausal disassociated with abnormal uterine bleeding. Different studies have found a significant relationship between increased endometrial thickness and the risk of EC. Objectives: We aimed to study an endometrial cancer clinical presentation, factor and the type of endometrial cancer in relation to the endometrial thickness, in tumor therapy and cancer research center (TTCRC) in Shendi city. *Methodology*: This is a descriptive cross-sectional Hospital–based study including 120 Sudanese women attend the (TTCRC), the data were collected by questionnaire from histopathology laboratory and medical statistical department. *Results*: The mean age of our participants was 57.9± years. Multi 78 porous was observed in 64 cases (53.3%), Obesity (≥30–39.9BMI) in 43cases (35.8%), just12cases (10%) had family history with EC, and post-menopausal bleeding in 47 cases (39.5%). There were 68 cases (56.7%) of Aden carcinoma (with squamous differentiation) and 40 cases (33.3%) their endometrial thickness 4-10 mm. There were significant association between endometrial thickness and, type EC (all P<0.05), and significant with age and clinical presentation (P=0.027). *Conclusion*: the in cadence of EC in the patients was higher in age >50 years, Multi-parous, BMI ≥ 30kg/m2, PMB was higher ate clinical presentation, Aden carcinoma (with squamous differentiation were common type of EC, most of the cases the in endometrial thickness were 4-10 mm and we found significant association with Type EC.

Keywords: Endometrial Cancer, Shendi, Sudan

1. Introduction

Endometrial cancer (EC) has become the most common in evasive malignancy of the female genital tract in the world [1]. The incidence is much lower in Asia, Africa, and South America. The higher incidence in Africa is accounted for in part by the widespread use of unopposed exogenous estrogen for post menopausal women until the 1970s. Extended longevity result in gin higher median age for women may also be a factor. However, the steady increase in incidence cannot be accounted for by these conditions alone, suggest in that a lowering of the threshold for the diagnosis of endometrial carcinoma may also be a contributing factor. [2]

Well documented conditions known to be associated with an increased risk of endometrial carcinoma include obesity, nulli parity, early menarche, and late menopause [3]. Obesity appears to pose the greatest risk, especially patients 50 or more pounds over their ideal body weight. Aromatization of androstenedione to estrone, which occurs in peripheral fat,

appears to be the source of the increased circulating levels of estrogen in obese patients [4]. Diabetes mellitus, hypertension, family history, a high-fat diet, and previous radiation have all been implicated in the increased incidence of endometrial carcinoma. Interestingly, a decreased rate of occurrence is seen in cigarette smokers; this has been explained by endometrial atrophy [5]. However, smoking gun conjunction with the use of exogenous estrogen significantly multiplies the risk of developing endometrial carcinoma, especially in thin women. [6] The median age for diagnosis of endometrial carcinoma is about 60 years. Abnormal bleeding is the most common presenting symptom, but a few patients are a symptomatic [7]. Because there is no adequate screening test for endometrial cancer, it is common practice to sample the endometrial of postmenopausal women who experience abnormal bleeding. The Pap smear, although a adequate for screening endometrial cancer has become the most common invasive malignancy of the female genital tract in the world [8, 9].

Several non genetic risk factor shave been associated with an increased risk of endometrial cancer, particularly for the most prevalent histological sub type endometrioid endometrial adenocarcinoma, which in clued obesity, physical in activity, excess exogenous estrogen, insulin resistance, and tamoxifen use after breast cancer where as daily coffee consumption has been shown to be inversely associated with endometrial cancer. [10]

The risk factors for EC include: age, null parity obesity, diabetes [11] and use of hormone replacement therapy (HRT) and tamoxifen therapy. However, the association of these risk factors to FIGO stage at diagnosis remains unclear thus limiting their value in prognosis [12]. Trans vaginal ultrasound scan (TVS) is a non invasive screening test and an ET of ≤ 4 mm is a cut of f value more frequently used in postmenopausal women for conservative management as, in these cases, the risk of EC drops from10% to 0.8% and therefore these patient scan avoid EC [13]. However, there is no strong evidence published on the association of ET measurement with all the known risk factors for EC. There are also not different recommendations on screening tools according to the two histological sub types of EC: type I (tumor' so grade 1 or 2 endometrioid histology) with a favorable prognosis, and types II (grade 3 endometrioid tumor's, as well as non endometroid histology issue has serous, clear cell and carcinosarcoma [14]. Moreover, EC is mainly disease of postmenopausal women, although between 4.9%–14 % of those affected are premenopausal, with a subset of 4% who are < 40 years old and for whom their primary symptom is abnormal uterine bleeding (AUB) [15]. In those symptom a tic pre menopausal women it is less clear who should undergo ES and selection of possible clinical indicators for biopsy to exclude EC remains equivocal. Most national guidelines [16] recommend ES in women older than 45 years with AUB. The New Zealand guidelines advise similarly that ES should be used in women over 45 years of age or with weights > 90 kg [17]. The Society of Obstetricians and Gynecologists of Canada advise ES in a slightly younger population: women older than 40 years or younger women with additional risk factors such as BMI of >30mg/kg or null parity. [18]

1.1. Problem Statement

Endometrial cancer is the most common type of cancer that affects woman in menopause, at the age of more than 50 years the morbidity rate and mortality for woman are still high with this disease in Africa, especially in Sudan, where endometrial cancer is one of the types of cancer with the highest mortality rate for Sudanese woman. The researchers presented studies showing risk factors and clinical symptoms of endometrial cancer. However, there were not enough studies showing endometrial thickness and its relationship to endometrial cancer types.

1.2. Justification

In this study, I try to review the clinical presentation with endometrial cancer (eg: postmenopausal bleeding, abnormal vaginal discharge…ect), and focus in on the risk of the endometrial cancer. This will give an idea about any differences which might be countered in the Sudanese population. More over; we would also study the type of endometrial cancer after histological testing in relation to the endometrial thickness on ultrasound, in retrospective study.

2. Materials and Methods

2.1. Study Area

Study was conducted in Shendi City at Tumors therapy and cancer researches center (TTCRC) –Shendi- University. It was established in 2010 for providing chemo therapy, nuclear medicine imaging, radiology and endoscopy services, laboratories services, radio-iodine therapy, early detection services, and radiation therapy for cervical cancers. Tele therapy department is under establishing. This is an only center providing this service for population in River Nile state, (that is one of the 18 wilayat or states of Sudan. It has an area of 122,123 km²(47,152mi²) and an estimated population of 1,027,534 (2006) were disabused among seven Localities (Ad-Damir (Capital), Atbara, Shendi, Berber, Abu Hamed, El Matamah, El Buhaira). The center is located in Shandi locality is about 150 km or the ast of Khartoum town and about 45 km south west of the ancient city of Meroe. The location of the center about (4) kilometer from the center of shendi town, at the cross of high way road from Khartoum to Atbara cross the main road inter in center of the shendi town. It principal sub urban the west bank is Al-Matamma. A Major Traditional Trade Route across the Bayuda Desert connects Al-Matamma to Marawi and Napata, 250 km to the North West).

2.2. Study Design

This was a prospective, descriptive, and cross section facility base study, hospital base.

2.3. Study Population

The study group includes all ladies diagnosed with endometrial cancer at different type; Data was obtained from the histopathology lab and the statistical department (TTCRC) for all women with endometrial cancer.

2.4. Study Periods

The study will be conducted from 2022.

2.5. Sample Size

Is estimated to be (120) Sudanese women.

2.6. Data Collection

Data were collected using as a structured interview questionnaire. The questionnaire was filled directly from the patient sand from their medical files.

2.7. Data Analysis

Data was analyzed using the Statistical Package of Social Science (SPSS) software version 26.0. Descriptive statistics in term of frequency tables with percentages and graphs. Descriptive analysis was performed for all study variables with mean and standard deviation for quantitative data and frequencies with proportions for qualitative data. Data was represented after descriptive analysis in form of uni-variable tables and figures and narrative illustration. While analytic data (interferential data) was presented in form of cross tabulation, (bi variable tables) and multi variable tables.

2.8. Ethical Consideration

Ethical approval for this study was obtained from the Research Ethics Committee of Shendi University, in inconsistency with He linsky's declaration of the international conference on harmonization, regulations, and laws of Sudan. Informed consent was obtained from all individuals prior to their participation in the study; participants were informed that their participation in the study is voluntary and that they have the right to with draw at any time. The dignity and confidentiality of the participants were preserved throughout the study.

3. Results

From to 2022 we had 120 patients with EC in tumor therapy and cancer reach center in shendi city among those The mean age was 57.9 ± years. The minimum age was 30 years, and the maximum was more than 50 years. The group over 50y ears old corresponded to 96 cases (80%), and the group 30-50 years old corresponded to 23 cases (19.3%) and less than 30 years 1 case (0.8%). The general description of the sample is presented in Table 1, figure 1.

There were 64 cases (53.3%) patients were Multiparous, 29 cases (24.2%) Grand multiparous and 27cases (22.5%) were Nulliparous. The general description of the sample is presented in Table 2, figure 2.

According to BMI, 43 (35.8%) were obese (≥30–39.9 BMI), 37 (30.8%) overweight (≥25.0– 29.9BMI), 31 (25.8%) ideal body weight 19–24.9BMI), and 9 (7.5%) under weight (≤18BMI). The general description of the sample is presented in Table 3, Figure 3.

We had 50 (41.6%) they had post-menopausal bleeding, 23 (19.1%) had abnormal vaginal discharge, 15 (12.5%) had heavy menstrual period, 8 (6.6%) had pelvic pain, 7 (5.9%) had irregular period while 4 (3.3%) had abdominal mass and pain, 4 (3.3%) had weight loss, 4 (3.3%) were accidentally on U/S, 3 (2.6%) had urinary symptom, 1 (0.9%) had intermenstrual bleeding and 1 (0.9%) had uterine mass The general description of the sample is presented in Table 4, figure 4. There was no significant difference between clinical presentation and age (P-value=.027). Show Table 8.

As regarding to family history 108 (90.0%) had no family history while 12 (10%) had family history of EC. Show Table 5, figure 5.

The present result found that 40 (33.3%) of cases their endometrial thickness 4-10 mm, 32 (26.7%) more than10 mm, 27 (22.5%) more than15mm and 21 (17.5%) less than 4 mm, show Table 6, Figure 6.

According to the type of EC 68 (56.7%) had Aden carcinoma (with squamous differentiation, 20 (16.7%) had and endometroid adenocarcinoma, 7 (5.8%) had moderately differentiation endometrial carcinoma, 6 (5.0%) had Endometrial stromal sarcoma, 5 (4.2%) had Adenosqamous (mixed cell), 5 (4.2%) had Adenocanthoma. Show Table 7, figure 7.

There were Significant statistically associated between Type EC and Endometrial thickness U.S (P-value=.027). Show Table 9.

Table 1. *Distribution o f the study group according to the Age.*

Item	frequency	percentage
Less than 30 years	1	0.8%
30-50 years	23	19.2%
More than 50 years	96	80.0%
Total	120	100.0%

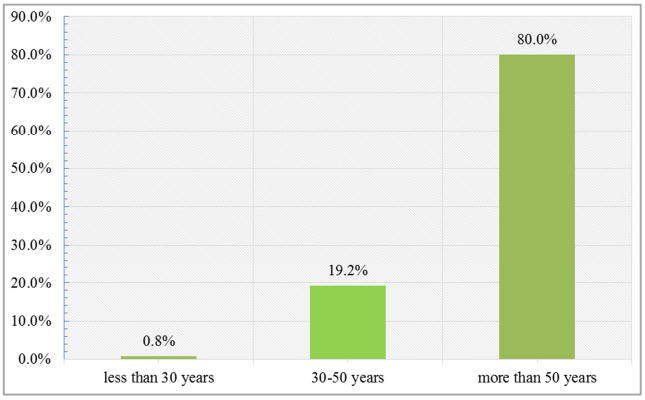

Figure 1. *Distribution of the study group according to the Age.*

Table2. *Distribution of the study group according to the Parity (N=120).*

Item	frequency	percentage
Nulliparous	2	23.0%

Item	frequency	percentage
Multiparous	63	53.0%
Grand multiparous	29	24.0%
Total	120	100.0%

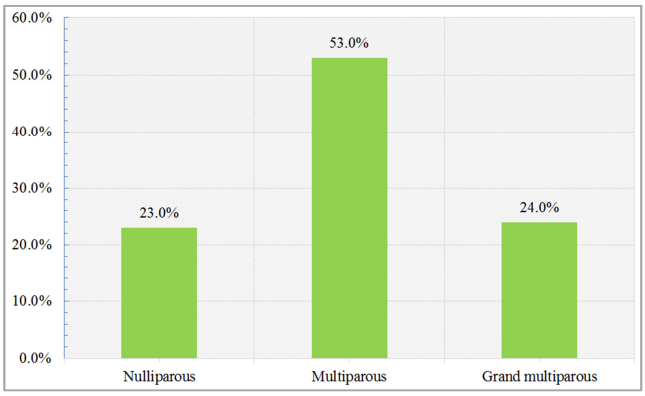

Figure 2. *Distribution of the study group according to the Parity (N=120).*

Table 3. *Distribution of the study group according to the BMI.*

Item	frequency	percentage
Underweight	9	7.5%
Ideal Body Weight	31	25.8%
Overweight	37	30.8%
Obesity	43	35.8%
Total	120	100.0%

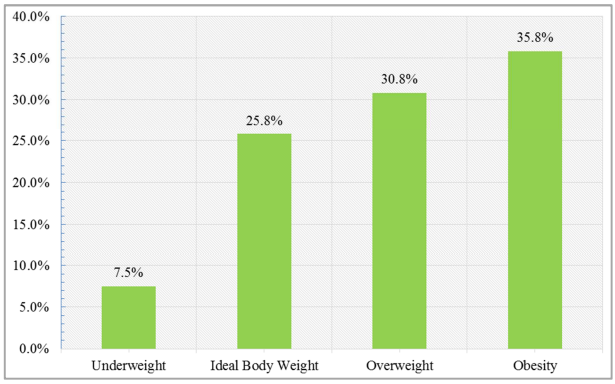

Figure 3. *Distribution of the study group according to the BMI.*

Table 4. *Distribution of the study group according to the Clinical presentation.*

Item	frequency	percentage
BMP	50	41.6%
Abnormal vaginal discharge	23	19.1%
Heavy menstrual period	15	12.5%
Pelvic pain	8	6.6%
irregular period	7	5.9%
Abdominal mass and pain	4	3.3%
Weight loss	4	3.3%
Accidentally on US	4	3.3%
urinary symptom	3	2.6%
Intermenstrual bleeding	1	0.9%
uterine mass	1	0.9%
Total	120	100.0%

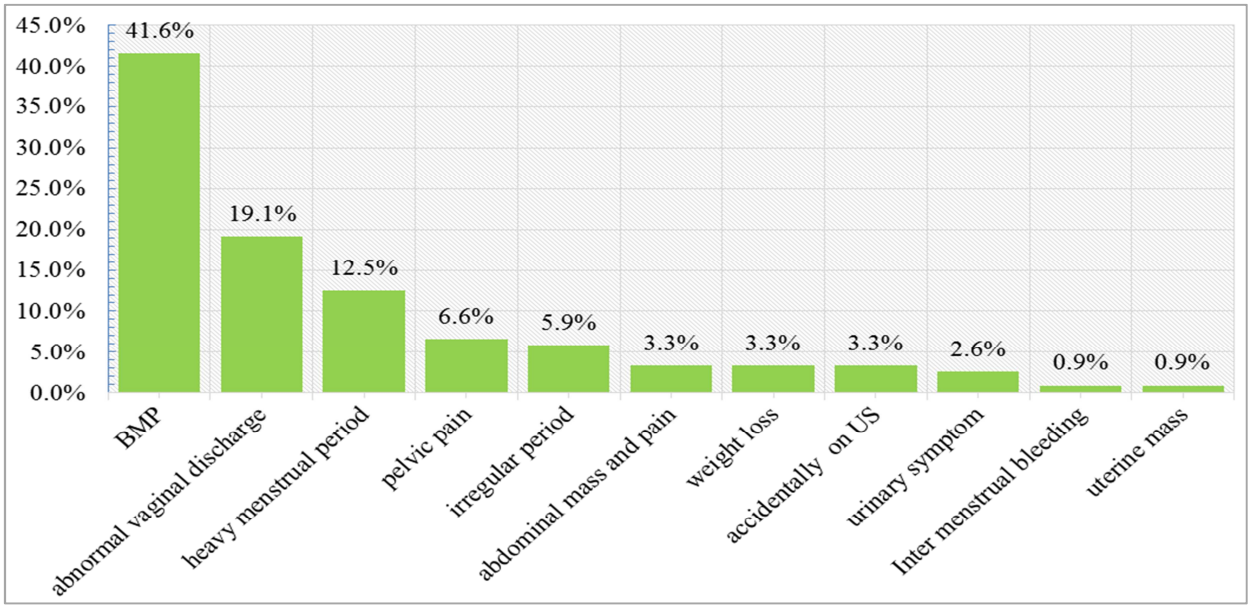

Figure 4. *Distribution of the study group according to the Clinical presentation.*

Table 5. *Distribution of the study group according to the Family History.*

Item	frequency	percentage
yes	12	10.0
No	108	90.0
Total	120	100.0%

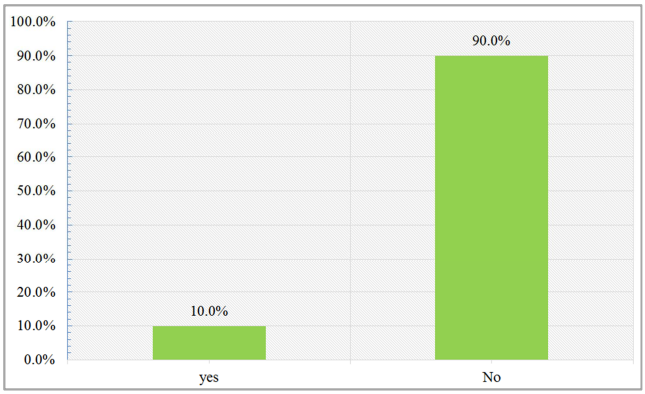

Figure 5. *Distribution of the study group according to the Family History.*

Table 6. *Distributions of the study group according to the endometrial thickness on US.*

Item	frequency	percentage
Less than 4 mm	21	17.5%
4-10 mm	40	33.3%
More than 10 mm	32	26.7%
More than 15 mm	27	22.5%
Total	120	100.0%

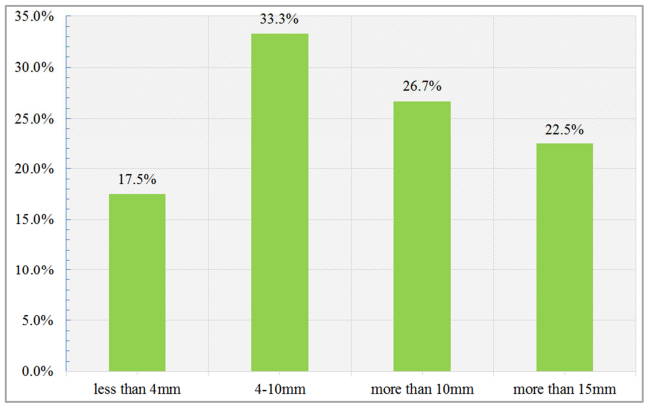

Figure 6. *Distribution of the study group according to the endometrial thickness on US.*

Table 7. *Distribution of the study group according to Type of endometrial Cancer.*

Item	frequency	percentage
Adenocarcinoma (with squamous differentiation)	68	56.7%
Adenoacanthoma	4	3.3%
Andometroid adenocarcioma	20	16.7%
Adenosqamous (mixed cell)	5	4.2%
Secretor carcinoma	5	4.2%
Clear cell carcinoma	5	4.2%
Endometrial stromal sarcoma	6	5.0%
Moderately differentiation endometrial ca.	7	5.8%
Total	120	100.0%

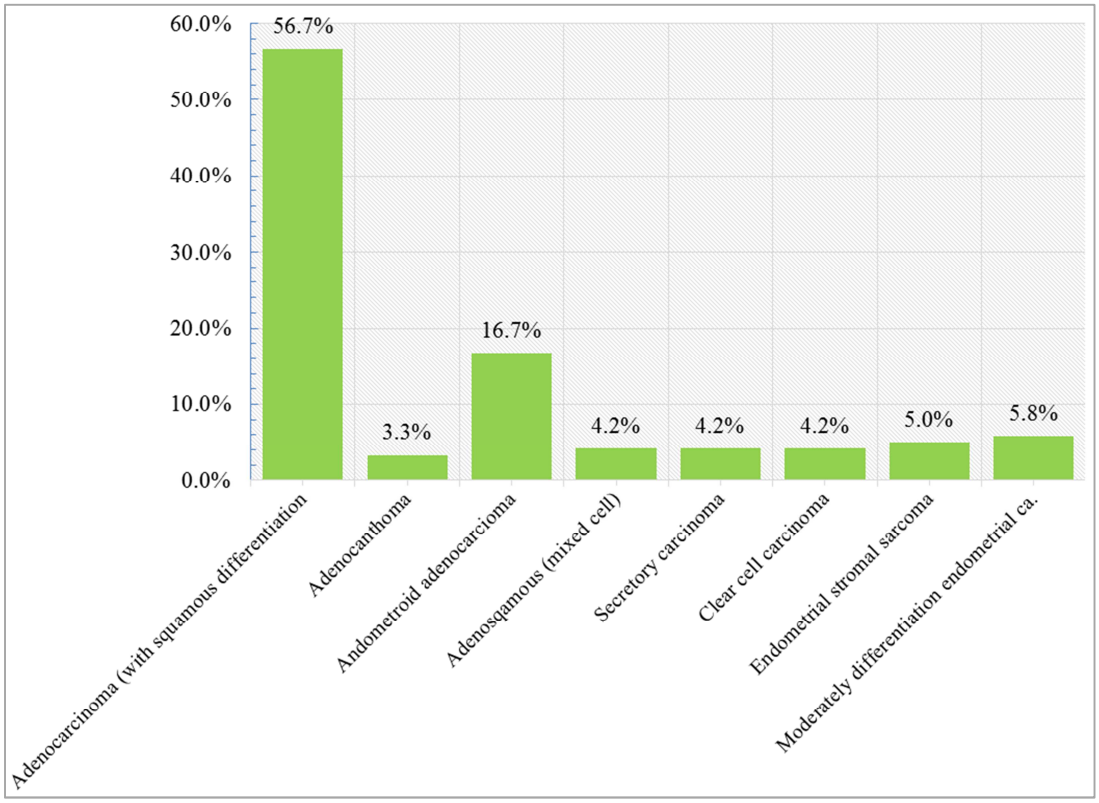

Figure 7. *Distribution of the study group according to Type of endometrial Cancer.*

Table 8. *Association between Age and Clinical presentation.*

Clinical presentation		Age			Total	P.v
		lessthan30years	30-50years	More than 50 years		
PMB	N	0	8	52	60	.027
	%	0.0%	5.3%	34.2%	39.5%	
Heavy menstrual bleeding	N	0	7	12	19	
	%	0.0%	4.6%	7.9%	12.5%	
Irregular period	N	1	1	7	9	
	%	0.7%	0.7%	4.6%	5.9%	
Pelvic pain	N	0	3	7	10	
	%	0.0%	2.0%	4.6%	6.6%	
Abnormal vaginally discharge	N	0	4	25	29	
	%	0.0%	2.6%	16.4%	19.1%	
Intermenstrual bleeding	N	0	1	2	3	
	%	0.0%	0.7%	1.3%	2.0%	
Accidentally on u.s	N	0	4	1	5	
	%	0.0%	2.6%	0.7%	3.3%	
Urinary Symptoms	N	0	0	4	4	
	%	0.0%	0.0%	2.6%	2.6%	
Wt loss	N	1	0	4	5	
	%	0.7%	0.0%	2.6%	3.3%	
Abd pain and mass	N	1	2	2	5	
	%	0.7%	1.3%	1.3%	3.3%	
Uterine mass	N	0	0	3	3	
	%	0.0%	0.0%	2.0%	2.0%	
Total	N	3	30	119	152	
	%	2.0%	19.7%	78.3%	100.0%	

*P.V Significant = 0.05
**P.V Highly Significant < 0.05

Table 9. *Association between Type of endometrial Cancer and Endometrial thickness on US.*

Type of endometrial Cancer		Endometrial thickness on US				Total	P. v
		lessthan4mm	4-10mm	morethan10mm	morethan15mm		
Adenocarcinoma (with squamous differentiation)	N	11	27	16	14	68	.000
	%	9.2%	22.5%	13.3%	11.7%	56.7%	
Adenocanthoma	N	0	0	4	0	4	
	%	0.0%	0.0%	3.3%	0.0%	3.3%	
Endometrioid Adenocarcinoma	N	4	9	0	7	20	
	%	3.3%	7.5%	0.0%	5.8%	16.7%	
Adenosquamous (mixed cell)	N	1	2	0	2	5	
	%	0.8%	1.7%	0.0%	1.7%	4.2%	
Secretary carcinoma	N	0	0	5	0	5	
	%	0.0%	0.0%	4.2%	0.0%	4.2%	
Clear cell carcinoma	N	5	0	0	0	5	
	%	4.2%	0.0%	0.0%	0.0%	4.2%	
Endometrial Stromal Sarcoma	N	0	1	5	0	6	
	%	0.0%	0.8%	4.2%	0.0%	5.0%	
Moderately differentiated endometrial ca	N	0	1	2	4	7	
	%	0.0%	0.8%	1.7%	3.3%	5.8%	
Total	N	21	40	32	27	120	
	%	17.5%	33.3%	26.7%	22.5%	100.0%	

*P.V Significant =0.05
**P.V Highly Significant <0.05

4. Discussion

Regarding the average age for endometrial cancer, the data obtained in this investigation suggest that the incidence (80%) of cases is marked from more than 50 years of age (mean=57.9), data that correlate with previous studies with a maximum incidence peak between50-54years of age and amorality peak from the age of 60. [19]

In our study We found strong evidence for (53%) of study group increasing endometrial cancer incidence among multipara compared with nulliparous women, Researcher (Zhou B. et al, 2018) [20]. found that 40% of patient increasing endometrial cancer incidence among multiparous compared to nulliparous (A large meta-analysis of 69,681 participants including 10 prospective studies, 35case –control studies and one pooled analysis suggested strong relationship between parity and endometrial cancer risk.

According to body mass index we found that (35.8%) >40 kg/m2 those obese patient, Our evidence grading largely

agreed with the World Cancer Research Fund Continued Update Project in 2013, which clarified that the body fatness was deemed to have a 'convincing causal relationship' with endometrial cancer. [21]

Regarding the observed clinical presentation, it was determined that postmenopausal bleeding carry relative clinical presentation for endometrial cancer. According to the data ob-tained, the observed percentage was (41.6%). These results agree with previous study done by (WuQJ. et al, 2015) [22]. which suggested that they were A mechanistic link between PMB and endometrial cancer.

This study showed that majority (90%) of study group have no family history of EC this result agree with previous study done by (Duska, et al, 2017) [17] which reported that more than tow third of study group were no family history of EC.

Our study found that the main finding of the present investigation list hat endometrial thickness (33.3%) were4-10 mm measured by ultrasound in post menopausal women admitted to the (TTCRC).

We have found that (56.7%) of patient their type of EC were adenocarcinoma, other authors (Matsuo K. et al, 2020) (HuttS. Et al, 2019) [23, 24] interestingly reported that the most common pathological type of endometrial cancer is endometrial is adeno carcinoma, which had counts for about 74.25 to 80.11%.

The present study reflect that they were significant statistic association between age and clinical presentation (P-value =.027). Also there were significant statistic association between the type of endometrial cancer and endometrial thickness U.S (p-value=.000), There are several published studies on the association between type of endometrial cancer and ultrasound endometrial thickness US with high significant (Bagnoli VR. et al, 2019). [25]

5. Conclusion

In conclusion, our study add to evidence that the incidence of EC in the patients was higher in age < 50 years, Multiparous, BMI ≥ 30kg /m2 are risk factors for endometrial cancer, Our findings emphasize that PMB was higher rate clinical presentation, also Aden carcinoma (with squamous differentiation were common type of EC, most of the cases their endometrial thickness were4-10 mm, We could find significant association between Age and Clinical presentations, more strongly associated with Type endometrial cancer and endometrial thickness US.

6. Recommendation

We recommend for:

1) Additional studies must be conducted in this subject and there searcher must be doing continues surveillance bout risk group of EC and the follow up of long term symptom are essential to minimize the incidence of EC.

2) Educational program about the importance of modification of life style such as regular exercise, healthy diet and weight management to enhance the patient well being and reduce the risk of disease occurrence.

3) Postmenopausal women should be extensively educated about the importance of cervical cancer screening.

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