Original research article

Comparative study of incidence of neoplastic and non-neoplastic types of female genital tract lesions at a tertiary care hospital in Kerala

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Abstract

Background: The female genital tract includes vulva, vagina, uterus, cervix, fallopian tubes, and ovaries. The common sites for the development of the neoplastic lesions are cervix, endometrium, myometrium and ovaries. Histopathological diagnosis is still considered as the "gold standard" in the assessment of cervical lesions; however, the histopathological assessment of these lesions is limited to the interpretation of the morphology, with little to no information regarding the risk of persistence, progression, or regression. The present study was conceived to correlate the clinical diagnosis and the histopathology of lesions of uterine cervix. The cases studied during this period were classified as clinically evident malignancy, clinically suspicious of malignancy and those cases where there was no clinical suspicion of cervical malignancy.

Materials and Methods: This study was carried out on the rural population in a tertiary care hospital at Kerala on 365 cases where the data and histopathology slides were retrieved from the hospital records from July 2015 to June 2018.

Results & Discussion: A total of 365 cases were studied and among these specimens, the cervical lesion specimens 93, endometrial lesion specimens 82, myometrial specimens 118, ovarian lesion specimens 68 and vaginal lesion specimens were 4 studies. Among 93 Cervical lesion specimens, number of hysterectomy samples, cervical punch biopsy samples and cervical polypectomy samples were 12, 69, & 12 respectively. Among 82 uterine endometrial lesions specimens, the number of hysterectomy specimens, Dilatation and Curettage and Endometrial polypectomy were 33, 46 & 3 respectively. Among 68 ovarian lesion specimens, the number of pan hysterectomy, TAH & USO, Oophorectomy & tubo-ovarian mass were 22, 6, 38 & 2 respectively. Adenomyosis was the most common non-neoplastic lesion and leiomyoma was found to be most common benign tumour. Most benign tumours were reported in the age group of 41-50 years group.

Conclusion: In this study, adenomyosis was found to be most common non-neoplastic lesion and leiomyoma was found to be most common benign tumor in female genital tract of 4th &

5th decades. Uterine cervix lesions were contributed majority of premalignant as well as malignant lesions.
Keywords: Female genital tract (FGT), leiomyoma, malignant neoplastic, squamous cell carcinoma

Introduction

The female genital tract includes vulva, vagina, uterus, cervix, fallopian tubes, and ovaries. The common sites for the development of the neoplastic lesions are cervix, endometrium, myometrium and ovaries. According to Worldwide cancer data 2018, breast cancer was the most common cancer in women worldwide, contributing 25.4% of the total number of new cases and cervical cancer was the fourth most common cancer in women, contributing 6.9% of the total number of new cases (1). In female genital tract, endometrium is hormone sensitive which constantly undergoes changes in the reproductive life. The malignant lesions are seen mostly in cervix, ovary and endometrium in the descending order. There are other less common tumours including tumours of vagina, vulva and fallopian tubes (2). Histopathological diagnosis is still considered as the "gold standard" in the assessment of cervical lesions; however, the histopathological assessment of these lesions is limited to the interpretation of the morphology, with little to no information regarding the risk of persistence, progression, or regression (3). In ovaries, the most common ovarian lesions include benign non neoplastic lesions and neoplastic lesions including functional cysts and ovarian tumours respectively. The commonest benign histopathological lesion in myometrium was leiomyoma (69%) followed by adenomyosis (47%) (4). Therefore, the present study was conceived to correlate the clinical diagnosis and the histopathology of lesions of uterine cervix. The cases studied during this period were classified as clinically evident malignancy, clinically suspicious of malignancy and those cases where there was no clinical suspicion of cervical malignancy.

Materials and Methods:

The present study is a prospective study and it was carried out in Department of Pathology, at Al Azhar Super speciality hospital and medical college, Thodupuzha, Idukki District, Kerala, over a period of 2 years i.e. from July 2015 to June 2018. The study was conducted after the approval from the Institutional ethical committee and consent was taken from all the patients. A total of 331 patients who attended the department of Obstetrics and Gynaecology, AAMC Hospital had underwent biopsy for various gynaecologic complaints. Out of these patients, three hundred and sixty-five (365) female genital tract lesions have been identified. It was so because single patient shows involvement of multiple sites of female genital tract e.g., cervix and ovary; cervix and endometrium; cervix, endometrium and myometrium etc. Such a kind of associations were observed in thirty-five (34) patients. Patient name, age, sex, presenting complaints, clinical history and clinical diagnosis which were provided in the requisition form, that will be sent along with the specimen have been considered in the present study. The samples were fixed in 10% formalin, and subjected for grossing according to protocols. Representative bits from pathological areas were taken, processed and embedded in paraffin. The 3-4 microns thin multiple sections were taken & stained with hematoxylin & eosin. The data was statistically analyzed by using SPSS statistical software (SPSS version 16). The data was expressed as frequency and percentage of the numbers.

Inclusion criteria:

1. Patient belonging to age group 18-80 years.
2. Neoplastic & non-neoplastic lesions of the vulva, vagina, cervix, uterine corpus, fallopian tubes and ovaries were included in the study.

Exclusion criteria:
Any patients with infections & metastatic tumours of female genital tract were strictly excluded from the study.

Observations:
A total of 365 cases were studied and among these specimens, the cervical lesion specimens 93, endometrial lesion specimens 82, myometrial specimens 118, ovarian lesion specimens 68 and vaginal lesion specimens were 4 studies.
Among 93 Cervical lesion specimens, number of hysterectomy samples, Cervical punch biopsy samples and Cervical polypectomy samples were 12, 69, & 12 respectively (Table 1). Cervical lesions are most commonly observed in 4^{th} to 6^{th} decade. In which, benign lesions are frequently observed in 5^{th} decade; premalignant lesions in 4^{th} decade and malignant lesions in 5^{th} & 6^{th} decade. Among cervical lesions, majority are pre-malignant lesions (40.2%), followed by malignant lesions (32.5%) and benign lesions (21.5%). Among benign lesions of cervix, endocervical polyp is the most common entity followed by cervical leiomyoma. Among pre-malignant lesions, low grade squamous intraepithelial lesion (LSIL) & high grade squamous intraepithelial lesion (HSIL) have almost equal incidence. Among invasive carcinomas, large cell non keratinizing variant is the most common variant. Most of the patients with cervical lesions presented with cervical growth (31.18%) followed by postmenopausal bleeding (23.65%).
Among 82 uterine endometrial lesions specimens, the number of hysterectomy specimens, Dilatation and Curettage and Endometrial polypectomy were 33, 46 & 3 respectively (Table 1). Endometrial lesions are frequently observed in 4th and 5th decades. Non-neoplastic lesions are commonly seen in 5th decade, benign and pre-malignant lesions in 4th decade. Only two cases of endometrial cancers are observed in the present study, one in 2nd decade and other one in 4th decade. Among endometrial lesions, pre-malignant lesions (42.68%) are most common, followed by non-neoplastic lesions (26.58%), benign lesions (18.29%) malignant lesions (2.43%). Commonly encountered non-neoplastic lesion of endometrium is disordered proliferative endometrium, benign lesion is Adenomatous polyp. Typical endometrial hyperplasia constitutes 35.36% and atypical endometrial hyperplasia constitutes 7.3% (Table 2). Most of the patients having endometrial lesions present with menorrhagia and abnormal uterine bleeding (Table 4). Among 118 uterine myometrium lesion specimens, the number of hysterectomy specimens and myomectomy specimens were 114 & 4 respectively (Table 1). Myometrial lesions are most commonly observed in 4^{th} and 5^{th} decades. Leiomyomas along with adenomyosis were frequently observed in 4^{th} and 5^{th} decades and adenomyosis in 4^{th} decade. Among myometrial lesions, majority are Leiomyomas (Benign) (73.72%), followed by adenomyosis (Non-neoplastic) (14.40%) and Combined adenomyosis and leiomyoma (11.86%) (Table 2). Uterine leiomyomas are associated with other pathologies like endocervical polyp, cervical fibroid, endometrial polyp, ovarian tumours etc. Most common pathology associated with uterine leiomyoma in the present study is Adenomyosis (11.86%). In majority of the cases there is no association (66.10%) (Table 5).
Among 68 ovarian lesion specimens, the number of pan hysterectomy, TAH & USO, Oophorectomy & tubo-ovarian mass were 22, 6, 38 & 2 respectively (Table 1). Ovarian lesions are common in 4^{th} decade. Benign and non-neoplastic lesions are more common in 4^{th} decade; malignant lesions in 4^{th}, 5^{th} and 7^{th} decades. Among Ovarian lesions, majority are benign (86.76%), followed by non-neoplastic (5.88%), malignant (4.4%) and borderline (2.94%) (Table 3). Majority of non-neoplastic lesions were ovarian endometriosis (75%) and neoplastic lesions were surface epithelial tumours (90.6%). Serous cystadenoma of ovary is the most common entity in neoplastic lesions (59.37%). Germ cell tumours accounts for 7.8%

and sex cord stromal tumours accounts for 1.56% (Table 1 & 2). Out of 63 cases with mass per abdomen and DUB clinically, only 3 cases were positive for malignancy on histopathology and 60 cases are found to be negative for malignancy. Out of 2 cases, where malignancy was clinically suspected, one case was positive for malignancy and one was negative for malignancy on histopathology (Table 6). Among 4 vulval lesions, malignant lesions accounts for 50%, followed by benign (25%) and non-neoplastic (25%) lesions (Table 1). Majority of Female Genital Tract (FGT) tumours are benign accounting for 63%, followed by borderline tumours accounting for 25% and malignant tumours accounting for 12% (Table 2). Benign lesions are more common in FGT; constituting around 50% followed by premalignant lesions constituting around 22%. Incidence of FGT lesions is high in 4^{th} and 5^{th} decades. Non-neoplastic and benign lesions are more common in 4^{th} and 5^{th} decades. Incidence of malignant lesions is high in 5^{th} & 6^{th} decades (Table 3). Clinicopathological correlation is maximum with cervical carcinoma (100%) & vulval carcinoma (100%), followed by leiomyoma (94.05%) and cervical polyp (80%) (Table 7).

Table 1: Frequency of Cervical, Endometrial, Myometrial, Ovarian, Vulva & vaginal and Non-neoplastic lesions in various types of biopsies

Type of specimen	No. of specimen	Percentage (%)
Cervical lesions:		
Hysterectomy	12	12.90%
Cervical punch biopsy	69	74.20%
Cervical polypectomy	12	12.90%
Total	**93**	**100%**
Endometrial lesions:		
Hysterectomy	33	40.24%
Dilatation & Curettage	46	56.09%
Endometrial polypectomy	3	3.65%
Total	**82**	**100%**
Myometrial lesions:		
Hysterectomy	114	96.61%
Myomectomy	4	3.38%
Total	**118**	**100%**
Ovarian Lesions:		
Pan hysterectomy	22	32.35%
TAH & USO	6	8.82%
Oophorectomy	38	55.88%
Tubo-ovarian mass	2	2.94%
Total	**68**	**100%**
Vulva & Vaginal lesions:		
Non-Neoplastic	1	25%
Benign	1	25%
Malignant	2	50%
Total	4	100%
Non-neoplastic lesions:		
Ovarian cyst complicated by torsion	1	25%
Endometriosis	3	75%
Total	**4**	**100%**

Table 2: Distribution of histopathological patterns of endometrial & myometrial lesions among the study population

HPE Patterns			**Frequency**	**Percentage (%)**
Endometrial lesions				
Non-neoplastic	Disordered proliferative endometrium		19	23.17%
	Atrophic endometrium		11	13.41%
Benign	Adenomatous polyp		14	17.07%
	Polypoidal adenomyoma		1	1.21%
Precursor	Endometrial hyperplasia	Without atypia	29	35.36%
		With atypia	6	7.3%
Malignant			2	2.43%
Total			**82**	**100%**
Myometrial lesions:				
Non-neoplastic	Adenomyosis		17	14.40%
Benign	Leiomyoma		87	73.72%
Combined-Adenomyosis & Leiomyoma			14	11.36%
Total			**118**	**100%**
Ovarian lesions:				
Benign			196	63%
Borderline			80	25%
Malignant			37	12%
Total			313	100%
Neoplastic lesions:				
I. Epithelial tumours			58	90.6%
A, Serous tumours	Serous cystadenoma		33	59.37%
	Borderline serous cystadenoma		1	1.56%
	Serous cystadenocarcinoma		1	1,56%
B. Mucinous tumours	Mucinous cystadenoma		13	20.31%
	Borderline mucinous cystadenoma		1	1.56%
	Mucinous cystadenocarcinoma		2	3.12%
C. Seromucinous cystadenoma			1	1.56%
D. Benign Brenner tumor			1	1.56%
II. Germ cell tumours	Benign cystic teratoma		4	6.25%
	Struma ovary		1	1.56%
III Sex cord stromal tumours	Fibrothecoma		1	1.56%
Total			**64**	**100%**

Table 3: Age distribution of Cervical, ovarian lesions among study population

Age	**Non-neoplastic**	**Benign**	**Borderline**	**Malignant**	**Total**	**Percentage (%)**
Cervical Lesions:						
<20		1	0	0	1	1.07%
21-30		2	9	1	12	12.90%
31-40		5	16	2	23	24.73%
41-50		7	5	9	21	22 58%
51-60		4	6	10	20	21.50%

51-70		1	5	4	10	10.75%
>70		0	2	4	6	6.45%
Total		**20**	**43**	**30**	**93**	**100%**
Endometrial lesions:						
<20	0	0	0	1	1	1.21%
21-30	4	1	4	0	9	10.97%
31-40	5	7	14	1	27	32.92%
41-50	13	5	10	0	28	34.14%
51-60	3	0	3	0	6	7.31%
61-70	3	2	2	0	7	8.53%
>70	2	0	2	0	4	4.87%
Total	**30**	**15**	**35**	**2**	**82**	**100%**
Ovarian lesions:						
<20	1	3	0	0	4	5.88%
21-30	0	12	1	0	13	19.11%
31-40	3	22	0	1	26	33.23%
41-50	0	15	1	1	17	25%
51-60	0	4	0	0	4	5.88%
61-70	0	2	0	1	3	4.41 %
>70	0	1	0	0	1	1.47%
Total	**4**	**59**	**2**	**3**	**68**	**100%**

Table 4: Clinical presentation of various Cervical, endometrial, myometrial and ovarian lesions.

No	**Clinical presentation**	**Pathological diagnosis**				**TOTAL**
		Non-neoplastic	**Benign**	**Premalignant**	**Malignant**	
Cervical Lesions:						
1	Cervical growth	-	7	13	9	29
2	Cervical growth & AUB	-	0	0	2	2
3	Cervical erosion	-	0	6	0	6
4	Chronic P1D	-	0	1	0	1
5	Leucorrhoea	-	0	2	1	3
6	AUB/DUB	-	5	10	4	17
7	Menorrhagia	-	3	0	1	4
S	Me no metrorrhagia	-	1	0	0	1
9	Pain abdomen	-	1	0	0	1
10	Pain abdomen & DUB	-	1	1	0	2
11	Mass P/A	-	0	2	1	3
12	Mass PIA & DUB	-	0	1	0	1
13	Perimenopausal bleeding	-	1	0	0	1
14	Postmenopausal bleeding	-	3	7	12	22
Total		-	**20**	**43**	**30**	**93**
Endometrial lesions:						

1	AUB/DUB	5	8	7	1	21
2	Mass P/A & DUB	3	5	2	0	10
3	Mass P/A	1	0	0	0	1
4	Secondary infertility	0	1	0	0	1
5	PMB	7	1	8	1	17
6	PMB & Mass P/A	1	0	0	0	1
7	Mass P/V	3	0	3	0	6
8	Menorrhagia	9	0	16	0	25
9	Dysmenorrhea	1	0	0	0	1
Total		**30**	**15**	**36**	**2**	**83**
Myometrial lesions:						
1	AUB/DUB	4	21	2		27
2	Mass P/A & DUB	3	24	4		31
3	Mass P/A	0	24	2		26
4	Pain abdomen	5	0	1		6
5	Pain abdomen & DUB	3	1	2		6
6	PMB	0	3	1		4
7	Mass PA/	1	2	1		4
8	Menorrhagia	1	12	0		13
9	Dysmenorrhea	0	1	0		1
	TOTAL	**17**	**88**	**13**		**118**
Ovarian Lesions:						
1	AUB/DUB	0	3	0	0	3
2	Mass P/A & DUB	2	44	2	2	50
3	Mass P/A	1	3	0	0	4
4	Pain abdomen	1	2	0	0	3
5	Pain abdomen & DUB	0	2	0	0	2
6	Pain & mass P/A	0	3	0	1	4
7	PMB	0	1	0	0	1
8	PMB & Mass P/A	0	1	0	0	1

Table 5: Other pathologies associated with uterine leiomyomas

Other pathologies	Frequency	Percentage (%)
Endocervical polyp	2	1.69%
Cervical fibroid	1	0.84%
CIN 1	2	1.69%
Carcinoma insitu	1	0.84%
Atrophic endometrium	3	2.54%
Endometrial polyp	5	4.23%
Adenomyosis	14	11.86%
Endometrial hyperplasia	4	3.38%
Serous cystadenoma of ovary	7	5.93%
Benign Brenner tumor of ovary	1	0.84%
Absent	78	66.10%
Total	118	100%

Table 6: Correlation between Probable Clinical and Histopathological of Diagnosis of Ovarian Malignancies

	Clinically DUB & mass P/A		Clinically Suspicious of Malignancy		Malignancy Not Suspected Clinically	
No of Cases	63		2		0	
Histopathological Diagnosis	Positive	Negative	Positive	Negative	Positive	Negative
	3	60	1	1	3	0

Table 7: Correlation between clinical and Histopathological diagnosis of female genital tract

Entity	**Total no. of cases diagnosed Clinically**	**Total no. of cases diagnosed on HPE**	**HPE correlation in clinically diagnosed cases**
Leiomyoma	95	101	89 (94.05%)
Adenomyosis	7	30	7 (23.33%)
Endometrial polyp	13	15	8 (53.33%)
Cervical polyp	17	15	12 (80%)
Cervical carcinoma	54	30	30 (100%)
Endometrial carcinoma	4	2	1 (50%)
Vulval carcinoma	2	2	2 (100%)

Discussion:

Neoplasms of the female reproductive system-namely cancer of the cervix uteri, cancer of the corpus uteri and ovarian cancers are important cause of cancer morbidity and mortality worldwide (5). In the present study conducted in a tertiary care centre in the rural set up, a total of 331 surgical specimens of female genital tract were received of which 365 specimens were found neoplastic. In our study, among cervical lesions, the incidence of benign, premalignant and malignant lesions were 21.5%, 46.23%, and 32.25% respectively. Studies done by Saini S et al (6) reported less incidence of cervical lesions compared to our study i.e. the benign lesions were 3, 68%; premalignant lesions were 4, 44% and malignant lesions were 14.21%. On the other side in contrast to the present study, the benign and malignant lesions were 66.7% and 33.3% respectively in the study of Ehsan Ullah et al (7), where, the incidence of benign lesions were high and malignant lesions were almost similar compared to our study. The study done by Saini S et al (6) showed that there was 79.32% of Endocervical polyps, 10.34% of Leiomyomatous polyps and 10.34% of Fibroepithelial polyps. It appears that the entity fibro epithelial polyp belong to spectrum of a single entity in the pathogenesis process with polypoidal endocervicitis as initial lesion, endocervical polyp as intermediate lesion and fibro epithelial polyp as a last stage in the pathogenesis process of same entity. These findings were correlated with the studies done by Sidha lingareddy et al (8) and Poste et al (9). In the present study, histological diagnosis of lesions of cervix like LSIL contributed to 23.65% and HSIL contributed to 22.66%. The studies of Sobande et al (10) showed less incidence of LSIL and HSIL lesions compared to our study i.e. 0.8% and 0.7% respectively. Whereas the other study conducted by Saini S et al (8) reported more incidence of LSIL and HSIL lesions compared to our study i.e. 40% and 54.29% respectively. In a studies of Saini S et al (8) and Poste et al (9), reported that HSIL was the predominant grade with highest

occurrence in the age group of 41-60 years and these findings were corroborated with our study. Whereas, in contrast to this the studies by Singh et al (11), Garud et al (12) and Jyothi et al (13).were reported that LSIL was the predominant with maximum occurrence. Most cases of severe dysplasia were seen in 5th and 6th decades. The incidence of squamous cell carcinoma is also highest in the same age groups. This finding supports the theory of evolution of invasive carcinoma from the preceding lesion, i.e. HSIL. A1S was seen in 2/35 cases (5.71%) of precursor lesions of cervix, which is lower than found in a study by Kaluzynski et al (14). This lesion is a precursor lesion for adenocarcinoma of cervix. Most of the authors were in the opinion that the incidence of squamous intraepithelial lesion was higher with l-EPV infection and seen in all generations of women aged from 25-60 years (15). While comparing broad histological types of malignant lesions of cervix among present study with other studies; Squamous cell carcinoma contributed to 70%; Adenosquamous carcinoma to 3.33% and miscellaneous variants to 26.67%. The findings of some recent studies were like squamous cell carcinoma contributed to 86% (7); 94.8% (16); 71.36% (17); 92.56% (18); 98.33% (19) and 92.59% (20). These findings were similarly corroborated with our study. The incidence of adenocarcinoma of cervix lesions were reported 14% in Ullah E et al (7); 3.6% in Arya A et al (16); 3.36% in Hemalatha AL et al (17); 4.1% in Pathak et al (18), 1.67% in Rahman MA et al (19); 3.70% in Saxena V et al (20), but there was no such lesions observed in the present study. In contrast to this the adenosquamous carcinoma of cervix lesions were contributed to 3.33% in present study. These findings of our study were corroborated with the reports of Arya A et al (16) & Saxena V et al (20) i.e. 0.5% & 3.7% respectively. Whereas, there were no reports of incidence of adenosquamous variants in studies of Ullah E et al (7), Sobande et al (10), Hemalatha AL et al (17), Pathak et al (18) & Rahman MA et al (19). In present study 26.67% were miscellaneous variants, in contrast to this there were no such lesions were found in the studies of Ullah E et al (7), Sobande et al (10), Arya A et al (16), Pathak et al (18), Rahman MA et al (19) & Saxena V et al (20). It has been reported that occurrence of cervical malignancy was 33.8% in the study by Solapurkar et al (21), which is higher than the present study.

In this study, an attempt was made to correlate the clinical diagnosis and the histopathology of lesions of uterine cervix. The cases studied during this period were classified as clinically evident malignancy, clinically suspicious of malignancy and those cases where there was no clinical suspicion of cervical malignancy. Out of 25 cases with growth on cervix clinically, only 10 cases are positive for malignancy on histopathology and 15 cases are found to be negative for malignancy. Thus, the clinicopathological correlation in this category is not significant. Out of 54 cases, where malignancy was clinically suspected, 30 cases were positive, while 24 cases were negative for malignancy on histopathology. In this group of clinically suspicious for malignancy, the greater proportion of malignancies were diagnosed in the 41 to 50 years age group, the later decades tends to present clinically as growth on cervix. Thus, an unhealthy cervix that needs to be biopsied stands the greatest chance of harbouring a malignancy if the patient belongs to 41-50 years of age group. At the same time, clinical suspicion of malignancy should be followed by a biopsy even in the younger age group, which also showed significant number of cases diagnosed as malignancy. A high index of suspicion would ensure against under diagnosis of cervical malignancy. Squamous cell carcinoma was the most common invasive cervical carcinoma observed in the present study accounting for 70% of the total invasive carcinoma, These finding were corroborated with the other studies of Solapurkar et al (21), Jyothi et al (13) and Poste et al (9), Squamous cell carcinomas were graded in this study according to Broders grading system and Regan et al (22), Large cell non-keratinizing type of squamous cell carcinoma was the common type, which is correlated with the studies done by Misra et al (23), Poste et al (9) and Jyothi et al (13). When the incidence of squamous cell carcinoma in the various age group was studied,

the highest incidence of squamous cell carcinoma was seen in 41-60 years of age group. This observation was correlated with the study of Saini S et al (6). Gompell and Silverberg et al (24) reported that out of the 4147 cases of carcinoma cervix, 88.8% of the cases were in the 31-60 years of age group. Solapurkar et al (21) study, reported that squamous cell carcinomas were highest in 3665 years of age group. Histologically, the common grade was moderately-differentiated carcinoma. N Jeebun et al (25), documented the occurrence of cervical cancer was common in the age group of 50-59 years. Jyothi V et al (13) reported that out of 268 cases of carcinoma cervix, 265 cases (98.88%) of squamous cell carcinoma were noted in 40-60 years age group.

In this study, incidence of non-neoplastic, benign, premalignant and malignant lesions of Endometrium were 36.58% of non-neoplastic lesions, 18.28% of benign, 42.66% of pre-malignant and 2.43% of malignant lesions. These findings were approximately correlated with the previous studies of Ullah E et al (7) i.e. 50.37% of pre-malignant lesions. Whereas, malignant lesions were reported as 10% in Ullah E et al (7), 6.3% in Arya A et al (16), 16.74% in Jamal S et al (26).

In our study, while comparing broad histological types of non-neoplastic lesions of Endometrium, there were 23.17% of disordered proliferative endometrium and 13.41% of atrophic endometrium lesions. In contrast to this, 24.5% of the lesions of Atrophic endometrium was reported by Gangadharan V et al (27). While comparing broad histological types of benign lesions of Endometrium, 1.21% of polypoidal adenomyoma lesions and 17.07% of adenomatous polyp lesions were observed in our study. In contrast to this, 6.1% of adenomatous polyp lesions were reported by Gangadharan V et al (27).

In the present study, there were 35.36% of typical endometrial hyperplasia and 7.3% of atypical endometrial hyperplasia among premalignant lesions of endometrium. Whereas, 3% of atypical endometrial hyperplasias were reported by Gangadharan V et al (27). Regarding malignant lesions of endometrium, it was reported that the endometrial carcinomas as 0.6% in Gangadharan V et al (27) and 16.74% in Jamal S et al (26). In contrast to these findings there was 2.43% of endometrial carcinomas in our study. It was found that adenomyosis were 24% in Perveen S et al (28), 28% in Ahmad MS et al (29), 51.08% in Rizvi G et al (30) and 19% in Gangadharan V et al (27) studies. Whereas, in this study, 14.4% were adenomyosis, 73.72% were leiomyoma, 11.86% were adenomyosis & leiomyomas. Among other studies, Leiomyomas contributed to 59.2% in Perveen S et al (28), 50% in Ahmad MS et al (29), 39.13% in Rizvi G et al (30) and 41% in Gangadharan V et al (27). Combined Adenomyosis and Leiomyoma contributed to 9.2% in Perveen S et al (28) and 9.78% in Gangadharan V et al (27). While comparing incidence of various non-neoplastic, benign, borderline and malignant lesions of ovary; 86.76% of benign, 2.94% of borderline and 4.4% of malignant lesions were noted in the present study. These findings of contribution of benign lesions were corroborated with the previous studies i.e. 78.57% in Kanthikar et al (34), 71.6% in Swamy GG et al (33), 72 9% in Gupta N et al (32), 75.2% in Pilli et al (35). Similarly, borderline lesions contributed to 1.42% in Kanthikar et al (34), 3.3% in Swamy GG et al (33), 4.1% in Gupta N et al (32) and 2.8% in Pilli et al (35) studies. Also, 59.18% of benign, 0.2% of borderline and 40.81% of malignant lesions of ovary were reported in Ahmad Z et al (31) study. In contrast to the present study, malignant lesions were contributed to 20% in Kanthikar et al (34), 25.1% in Swamy GG et al (33). 22.9% in Gupta N et al (32), 42.46% in Jamal S et al (26), 21.8% in Pilli et al (35), 40.81% in Ahmad Z et al (31) and 5.8% in Sen U et al (36) studies. While comparing broad histological types of neoplastic lesions of ovary, 90.60% were surface epithelial tumours, 7.81% were Germ cell tumours and 1.56% were sex cord stromal tumours were observed in the present study. These findings were contrast to the previous studies, 61.6% (33) and 50.98% (37) of surface epithelial tumours. Germ cell tumours were contributed to 21.7% in Swamy GG et al (33), 14.3% in Jamal S (26) and

31.37% in Dalsania M et al (37) studies. Sex cord stromal tumours contributed to 11.7% in Swamy GG et al (33), 13.4% in Jamal S et al (26) and 11.76% in Dalsania M et al (37) studies. Whereas, miscellaneous tumours contributed to 12.16% in Jamal S et al (26) study. In our study, 81.08% of carcinoma cervix, 8.10% of endometrial carcinoma, 5.40% of ovarian carcinoma, 5.40% of vulval carcinoma were observed. But there was no single case of vaginal carcinoma in our study. These findings were similarly corroborated with the other studies of Hemalatha AL et al (17), Rahman MA et al (19), Arya A et al (16), Agarwal (38) i.e. 75.36% and 64.87%, 72.2%, 71.5% of Carcinoma cervix respectively.

Conclusion:

In conclusion, adenomyosis was found to be most common non-neoplastic lesion and leiomyoma was found to be most common benign tumor in female genital tract of 4^{th} & 5^{th} decades. Uterine cervix lesions were contributed majority of premalignant as well as malignant lesions. There was minimal number vulva and vaginal lesions and out of which 50% are malignant lesions. Premalignant lesions were more common in 4^{th} decade & malignant lesions were most common in 5^{th} & 6^{th} decades. Correlation between clinical diagnosis & histopathological diagnosis of female genital tract lesions was maximum in cervical carcinoma & vulvar carcinoma followed by the ovarian tumor, uterine leiomyoma and cervical polyp. Correlation between clinical diagnosis & histopathological diagnosis of female genital tract lesions was least in adenomyosis. There is the need to increase awareness and counsel the rural area female population regarding the risk factors and also to conduct screening programs to diagnose the malignancies of the female genital tract to reduce morbidity and mortality.

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