

## Histopathological study of lesions of female genital tract in rural Maharashtra

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### Abstract

**Objective:** There are various lesions found in female genital tract from cervix to uterus to ovary. Although leiomyoma is the commonest lesion in female genital tract, lesions from cervix, fallopian tube and ovary are clinically important. Our objective is to analyze the various lesions in female genital tract, to study the incidence of various lesions and their interrelation.

**Materials and Methods:** A 1 year retrospective study conducted in the Dept. of Pathology IIMS & R Medical College, where in 140 specimens of female genital tract (uterus, fallopian tube and ovary) were subjected to histopathological examination and relevant clinical data was analyzed.

**Results:** Most of the patients presented with abnormal uterine bleeding (50%). Out of 125 hysterectomy cases, 84 had uterine pathology (67.2%) which included leiomyoma and adenomyosis. The pyosalpinx was leading tubal pathology (15.8%) while simple serous cysts form majority of ovarian pathology (26.3%).

**Conclusion:** Though hysterectomy is a routine procedure in the management of uterine leiomyoma, occasional cases of tumor or infective pathology may be missed. The histopathological evaluation of ovarian and tubal lesions is also important for subsequent management. Therefore histopathology is mandatory for confirmed diagnosis and hence for ensuring optimal management.

**Keywords:** Leiomyomas, Hysterectomy.

### Introduction

Hysterectomy is one of the commonest gynecological operation in pre and post-menopausal women in entire world.<sup>1</sup> It is indicated for most of benign gynecological lesions and dysfunctional uterine bleeding.<sup>2</sup> The leiomyoma are commonly seen benign uterine neoplasms in women of child bearing age group accounting for 5-20%.<sup>3-5</sup> Leiomyoma need hormonal milieu for their growth and maintenance as proved by the molecular studies that leiomyoma shows more estrogen receptors than normal myometrium.<sup>5-7</sup> These tumors are usually asymptomatic, however depending on their size, location and hormonal effects, the clinical symptoms vary. The commonest clinical manifestations include menorrhagia, dysmenorrhoea, pain in abdomen, mass in abdomen and mass effects.<sup>8</sup> The symptomatic leiomyoma need priority attention either by myomectomy in younger women desirous of retaining the childbearing function or by hysterectomy.<sup>9,10</sup>

Dysfunctional uterine bleeding (DUB) is defined by Blaustein's Pathology of the Female Genital Tract as an abnormal uterine bleeding in a premenopausal woman resulting from alterations in the normal cyclical changes of the endometrium and without an underlying specific pathological cause such as endometritis, polyps, exogenous hormones, hyperplasia, or carcinoma.<sup>11</sup> Tissue diagnosis is a must in the diagnosis of DUB especially in perimenopausal and postmenopausal female.<sup>12</sup> The incidence of DUB is 10% of women in their reproductive years.<sup>13</sup> In various studies, histopathological examination of DUB has shown a spectrum of findings ranging from normal endometrium like proliferative and secretory to abnormal findings like disordered proliferative

endometrium, hyperplasia, irregular shedding or atrophy of endometrium.<sup>14-16</sup>

The fallopian tube is a common specimen in the laboratory now days. It may be examined alone as salpingectomy or tubal ligation specimen or as a part of complex specimen from hysterectomy and/or oophorectomy operations or as part of tubo-ovarian mass.<sup>17</sup> Plethora of diseases ranging from salpingitis specially tuberculous salpingitis to cystic lesions to invasive carcinoma are found in tube. As this is a common specimen in the histopathology laboratory, knowledge of the general frequency of these lesions among population can be valuable to the pathologist and gynecologist. It is observed that inflammatory tubal lesions forms the major group followed by ectopic tubal pregnancy which is an important cause of maternal morbidity and mortality.<sup>18,19</sup>

Ovarian neoplastic and non-neoplastic lesions possess a challenge to gynecologist. Some non-neoplastic lesions of the ovary usually present as a pelvic mass and mimic an ovarian neoplasm. Therefore their proper recognition and classification is important to allow appropriate therapy.<sup>20</sup> The typical common lesions encountered in the ovary are functional or benign cysts and tumors.<sup>21</sup> Ovarian neoplasms are rare, usually detected at a late stage and are large in size, because of their presentation with mild symptoms.<sup>22</sup> Histopathology remains the single most important modality for diagnosis of ovarian lesions.

The present study is undertaken to study the diverse histomorphological patterns of uterine lesions, ovarian lesions and the lesions of fallopian tube in this part of region and thus offering a specific diagnosis which is of paramount clinical significance.

## Objective

This study is undertaken to analyze histopathological lesions of uterus, fallopian tube and ovary in rural population of Maharashtra. To know the incidence of various lesions in female genital tract in rural population of Maharashtra.

## Materials and Methods

The present study was conducted in the Department of Pathology, Indian Institute of Medical Sciences and Research, Warudi Dist. Jalna (MH). This study is conducted retrospectively over period of 1 year from March 2017 to March 2018. 140 specimens including hysterectomy with or without salpingo-oophorectomy specimen, salpingectomy specimen, oophorectomy specimen were subjected to examination. Patient's clinical data was taken with respect to age, clinical manifestation, USG findings and basis of diagnosis. On receipt of surgical specimen, they were fixed in 10% neutral buffered formalin for 24-48 hours. Gross examination of uterus, cervix with or without bilateral adnexae was carried out as per protocol. Well circumscribed grey to tan lesions with whorled appearance was considered as leiomyoma and details related to its location and numbers were noted. Adequate sections from cervix, endomyometrium, fallopian tubes and ovaries were taken and representative additional sections from leiomyoma and other abnormal areas were also taken, processed and paraffin embedded. The blocks were made, sectioned and stained with Hematoxyline eosin (H&E) stain. A detailed microscopic histopathological examination pertaining to endometrial glandular and stromal changes, myometrial, tubal and ovarian findings were noted to arrive at final diagnosis. All findings were cumulatively considered and included for further appropriate diagnosis.

## Results

A total 140 specimen of female genital tract were studied over period of 1 year (Table 1). These specimens include simple hysterectomy, hysterectomy with bilateral salpingo-oophorectomy, hysterectomy with unilateral salpingo-oophorectomy, unilateral salpingo-oophorectomy or bilateral salpingo-oophorectomy specimens. The simple hysterectomy constituted 72.8% of all specimens and was commonest specimen studied. Only 1 bilateral salpingo-oophorectomy specimen constituted 0.7% of all specimens.

Age distribution of patients was also studied. The age group was divided into 10 year interval and most patient fall into 40-49 year age group. This group formed 49.3% of all patients while 50-59 year age group was second most common age group with 20 patients (14.3%). The youngest patient was 19 years and oldest was 73 years (Table 2).

Since the study included entire genital tract, the clinical presentation of the patients varied greatly. The most common symptom was abnormal uterine bleeding (50% cases) followed by abdominal pain (28.6% cases). In 25% cases, abnormal uterine bleeding was associated with abdominal pain. Of 36 cases of prolapse, 35 complained of something coming out per vagina (27.9%) and 1 patient complained of retention of urine (0.7%).

The lesions were classified into uterine, endometrial, cervical, tubal and ovarian lesions. Out of total 140 cases, we processed 125 cases of hysterectomy (89.3%). These 125 cases showed leiomyoma and adenomyosis as uterine pathology. The leiomyoma were sub classified into sub mucosal, intramural, subserosal or multiple locations. Out of 125 cases, 51 cases (36.4%) showed leiomyoma as pathology. The most common leiomyoma was intramural (40 cases) followed by sub mucosal (10 cases). In 6 cases, leiomyoma was present in multiple locations (4.3%). Grossly, leiomyoma were well circumscribed masses showing solid whorled cut section. Microscopically, it showed well circumscribed tumors consisting of oval to spindle shaped cells having elongated blunt ended nuclei and moderate amount of eosinophilic cytoplasm arranged in interlacing fascicles and bundles (Fig. 1). Some leiomyoma showed secondary changes like hyaline degeneration and myxoid degeneration. If the endometrial glands and stroma are seen embedded beyond one low power field from endomyometrial junction, then it was considered as adenomyosis. Grossly, uterus showed trabeculated myometrium with increased average myometrial thickness. Microscopically deeper myometrium showed islands of endometrial glands and stroma surrounded by hyperplastic smooth muscle bundles. 33 cases of adenomyosis were noted which constituted 23.6% of total hysterectomy specimens. In short, out of 125 hysterectomy cases, 84 cases had uterine pathology (67.2%).

125 cases of hysterectomy revealed 125 endometrial diagnoses (Table 5). In endometrium, most common findings were proliferative phase endometrium 47 cases (37.6%), atrophic endometrium 40 cases (32%) and secretory phase endometrium 26 cases (20.8%). In 7 cases, endometrium showed presence of polyp (5.6%). The polyps are pedunculated or non pedunculated benign proliferations in endometrial cavity which may mimic carcinoma due to bleeding caused by them. Grossly, polypoid masses ranging from 1 cm to 6 cm in diameter were noted in endometrial cavity with dilatation of endometrial lumen. Those diagnosed as Leiomyomatous polyp were not included in this category but were included under sub mucous leiomyoma. Microscopically they showed polypoid mass lined by flattened surface endometrium. The core of polyp showed endometrial glands and edematous stroma along with many thick walled blood

vessels. Sparse mononuclear cell infiltration is also seen in many polyps. 7 cases showed simple endometrial hyperplasia (5.6%). Grossly it appears as thickened endometrium (Lusch endometrium). Microscopically it showed back to back endometrial glands with dense compact stroma, increased glands to stroma ratio and gland in gland appearance (Fig. 2). 3 cases (2.4%) of abnormal uterine bleeding showed disordered proliferative endometrium on microscopy. Few glands appeared in proliferative phase while few showed irregular, dilated glands filled with secretions in lumen (Fig. 3). 1 case (0.8%) was diagnosed as endometrial carcinoma in elderly postmenopausal women complaining of postmenopausal bleeding. Grossly, endometrium was thickened. Microscopically endometrial glands were seen with cytological and architectural dysplasia and invasion. Papillary fronds lined by columnar cells having hyperchromatic nuclei and eosinophilic cytoplasm were seen (Fig. 4). In 1 case, endometrium was obliterated by extension of cervical squamous cell carcinoma.

Chronic cervicitis was found in 96 out of 125 hysterectomy cases (76.8%). Chronic cervicitis was found overlapping with other lesions of cervix. Other than cervicitis, the cervical pathology was found commonly in cases of uterus with prolapse. In prolapse uterus, cervix is seen as hypertrophic grossly and microscopic finding include hyperkeratosis, acanthosis, squamous metaplasia and chronic cervicitis. The prolapse uterus was frequently associated with bulky uterus or adenomyosis. The cervical changes consistent with prolapse were found in 35 cases (28%). 10 cases of cervical polyp were seen which constituted 8% of hysterectomy cases. It is not uncommon to find invasive cervical carcinoma or In situ carcinoma in hysterectomy cases. We found 4 cases with either invasive carcinoma or In situ carcinoma in 125 cases (3.2%).

In fallopian tube, the most common lesion was pyosalpinx (6 cases/15.8%). In these cases, the fallopian tube was seen dilated with thinned out wall and lumen was filled with pus material (Fig. 5). 2 cases of hematosalpinx (5.7%) and 1 case each of ectopic gestation (2.6%) and xanthogranulomatous salpingitis (2.6%) were seen (Fig. 6). In ectopic gestation, many chorionic villi with decidual tissue and fetal parts were noted in fallopian tube.

The most common lesion in ovary was cystic lesions (Table 8). These include simple cysts (26.3%), corpus luteum cyst (2.6%), chocolate cyst (5.3%), cystic teratoma (7.9%) and cyst adenomas (21.1%). The simple cysts are lined by single layer of flattened cuboidal epithelium. These cysts may be of mesonephric or paramesonephric origin but their differentiation is of no clinical significance. The corpus luteum cyst is is >3 cm in size and is lined by inner granulosa cells and outer layer of theca cells. The chocolate cyst of ovary is actually endometriosis in

ovary. There is cyst formation due to accumulation of shedded endometrial tissue from endometriotic glands which appear as chocolaty thick fluid. The cyst adenomas are benign cystic tumors of ovary lined by serous or mucinous columnar epithelium. Of total 38 ovarian specimens, 22 (57.9%) were cystic including non neoplastic and neoplastic. Simple serous cysts was the commonest cystic lesion as well as commonest of all ovarian lesions (26.3%) followed by 6 cases of serous cystadenoma (15.8%). Out of total 5 (13.2%) cases of Teratoma, 2 (5.3%) were monodermal and 3 (7.9%) were mature cystic teratoma. The torsion of ovary is usually present with acute abdomen in young patients. We diagnosed 2 (5.3%) cases of torsion of ovary. The gross examination revealed ovary with almost normal size, blackish discoloration of external surface and cut surface showing hemorrhages. Microscopically it showed extensive hemorrhagic necrosis along with dense inflammation and congested and dilated blood vessels. 1 case of benign Brenner tumor of ovary was also noted (Fig. 8)

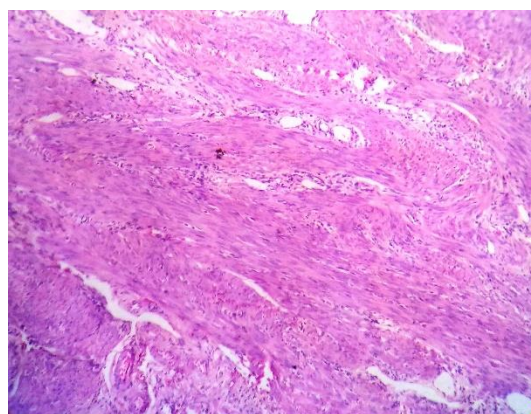


Fig. 1

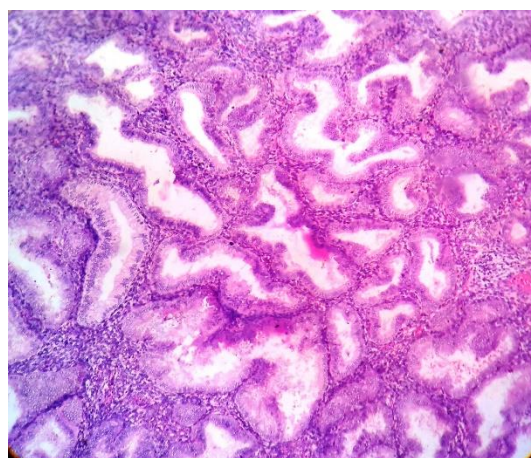


Fig. 2



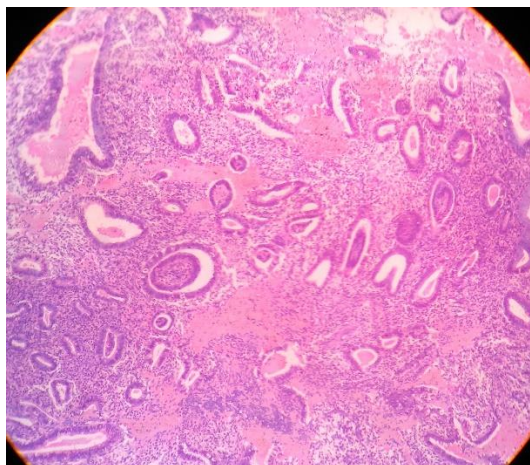


Fig. 3

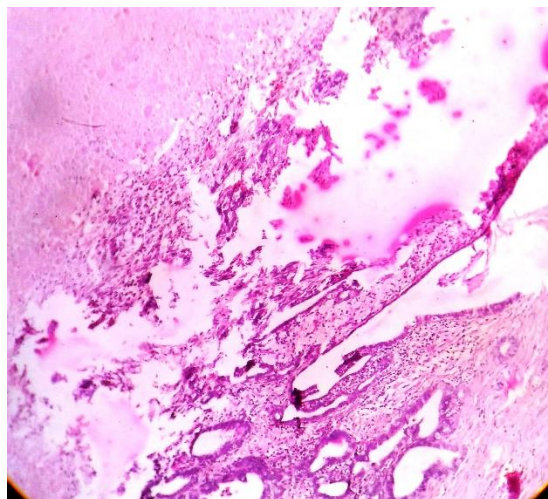


Fig. 6

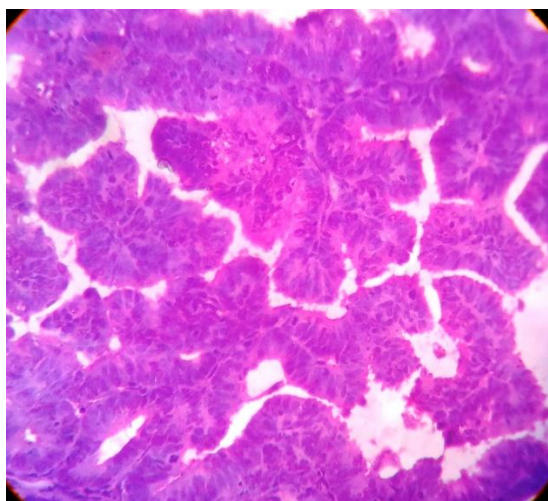


Fig. 4

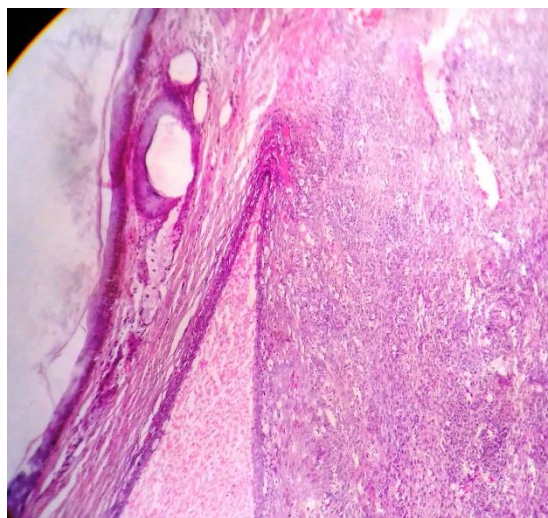


Fig. 7

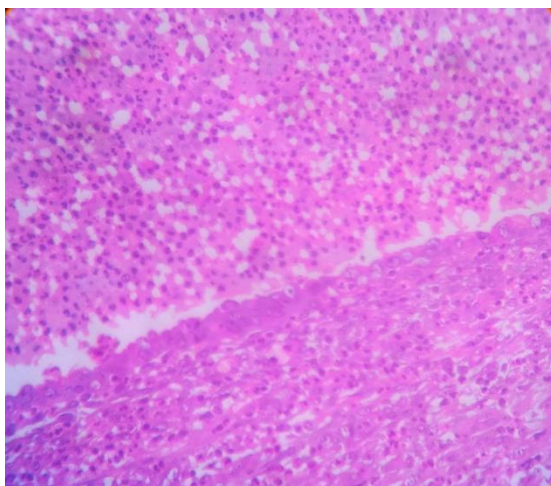


Fig. 5

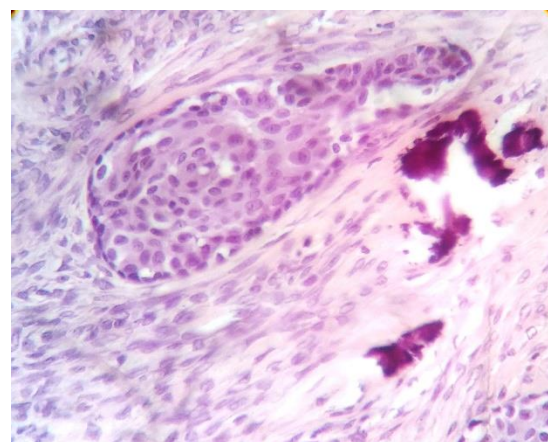


Fig. 8

**Table 1: Type of specimens**

S. No.	Type of Specimen	Number	Percent
1	Simple hysterectomy	102	72.8
2	Hysterectomy with one sided salpingo-oophorectomy	12	8.6
3	hysterectomy with both sided salpingo-oophorectomy	11	7.9
4	One sided salpingo-oophorectomy	14	10
5	Both sided salpingo-oophorectomy	1	0.7
	<b>Total</b>	140	100

**Table 2: Age wise distribution**

S. No.	Age in years	Number	Percentage
1	20-29	8	5.7
2	30-39	29	2.7
3	40-49	69	49.3
4	50-59	20	14.3
5	60-69	12	8.6
6	> 70	2	1.4
	<b>Total</b>	140	100

**Table 3: Clinical presentation of patients**

S. No.	Clinical Manifestations	Number	Percentage
1	Abnormal uterine bleeding	70	50
2	Dysmenorrhoea	39	25
3	Something coming out per vagina	35	27.9
4	Abdominal pain	40	28.6
5	Retention of urine	1	0.7

**Table 4: Histopathology of uterine lesions**

S. No.	Diagnosis	Number	Percentage
1	Leiomyoma	51	36.4
	Intramural	40	28.6
	Subserosal	8	5.7
	Submucosal	10	7.1
	Multiple location	6	4.3
2	Adenomyosis	33	23.6
	<b>Total</b>	84/125	67.2

**Table 5: Histopathology of endometrium**

S. No.	Diagnosis	Number	Percentage
1	Proliferative phase	47	37.6
2	Secretory phase	26	20.8
3	Disordered prolifration	3	2.4
4	Simple endometrial hyperplasia	7	5.6
5	Atrophic endometrium	33	26.4
6	Endometrial polyp	7	5.6
7	Endometrial carcinoma	1	0.8
8	Extension of cervical squamous cell carcinoma	1	0.8
	<b>Total</b>	125	100

**Table 6: Histopathology of cervix**

S. No.	Diagnosis	Number	Percentage
1	Consistent with prolapse	35	28
2	Carcinoma cervix/ CIN	4	3.2
3	Cervical polyp	10	8
4	Squamous metaplasia	30	24
5	Chronic cervicitis	96	76.8

**Table 7: Histopathology of fallopian tubes**

S. No.	Diagnosis	Number	Percentage
1	Hematosalpinx	2	5.3
2	Pyosalpinx	6	15.8
3	Ectopic	1	2.6
4	Xanthogranulomatous salpingitis	1	2.6
5	No specific lesion	28	73.7
	<b>Total</b>	38	100

**Table 8: Histopathology of ovary**

S. No.	Diagnosis	Number	Percentage
1	Simple serous cyst	10	26.3
2	Hemorrhagic corpus luteal cyst	1	2.6
3	Chocolate cyst	2	5.3
4	Monodermal teratoma	2	5.3
5	Mature cystic teratoma	3	7.9
6	Serous cystadenoma	6	15.8
7	Mucinous cystadenoma	2	5.3
8	Torsion of ovary	2	5.3
9	Benign brenner tumor	1	2.6
10	No specific lesion	9	23.8
	<b>Total</b>	38	100

**Table 9: Comparison with uterine lesions**

Study	Leiomyoma	Adenomyosis
Bhosale et al <sup>26</sup>	55%	29.4%
Sobande et al <sup>24</sup>	25.8%	22.7%
Ahsan et al <sup>25</sup>	36%	30%
Madiha et al <sup>23</sup>	39%	19%
Gupta et al <sup>10</sup>	34%	10.89%
Our study	36.4%	23.6%

**Table 10: Comparison with endometrial lesions**

Study	Endometrial polyp	Endometrial hyperplasia	Endometrial carcinoma	Disordered Proliferative Endometrium	Proliferative/ Secretory/ Atrophic	Other
Nayak et al <sup>35</sup>	0.6%	27.5%	1.2%	-	66.3%	4.3%
Gowri et al <sup>34</sup>	4.2%	22.8%	-	-	73%	-
Dayal S et al <sup>32</sup>	1.8%	5%			86%	2.5%
Kakkar M et al <sup>33</sup>	-	9.6%	-	4.7%	82.1%	3.6%
Our study	5.6%	5.6%	0.8%	2.4%	84.8%	0.8%

**Table 11: Comparison with ovarian lesions**

study	Benign cysts (Non neoplastic)	cystadenomas	teratoma	torsion	Benign Brenner	Malignant
Prakash et al <sup>37</sup>	41%	49.3%	3.5%	2.2%	-	1.7%
Sawant et al <sup>36</sup>	77%	17.5%	2.1%	-	-	5.6%
Our study	34.2%	21.1%	13.2%	5.3%	2.6%	-

## Discussion

Hysterectomy is commonly performed gynecological surgery in the world. It can be simple hysterectomy or hysterectomy with removal of one or more adnexae. The decision to remove the organ is very traumatic in patient's point of view and hence must be

taken judiciously only after all conservative modalities fail. Charles Clay was the first to perform subtotal and total hysterectomy in Manchester, England in 1843 and 1929 respectively.<sup>27,28</sup> It is curative for most of benign and neoplastic lesions of uterus. Benign conditions like leiomyoma, DUB, adenomyosis, PID, endometriosis

and uterine prolapse account for major hysterectomies and rest for malignancy.<sup>29,30</sup> Leiomyoma are benign neoplasm composed of smooth muscle with variable amount of connective tissue.<sup>3-5</sup> Leiomyoma are commonly seen in the women of reproductive age.<sup>3-5,9</sup> In present study, most of the patients with leiomyoma were in reproductive age group (57.7%) similar to studies by Begum S et al<sup>7</sup> whereas in contrast Hafiz R et al<sup>31</sup> observed that affected females were a decade lesser 20-40 years of age possibly since they included only menorrhagic patients with fibroid. Our study found that out of total 125 hysterectomy cases, 36.6% cases had leiomyoma. Similar findings were observed in study by Ahsan et al,<sup>25</sup> Gupta et al<sup>10</sup> and Madiha et al.<sup>23</sup> Few studies found higher incidence like Bhosale et al<sup>26</sup> (55%) while some studies found lower incidence eg. Sobande et al<sup>24</sup> (25.8%). In our study, adenomyosis was found in 23.65% cases similar to Sobande et al<sup>24</sup> (22.7%) and Bhosale et al<sup>26</sup> (29.4%) [Table 9]. Most cases of prolapse had co-existing adenomyosis. This may be due to bulky uterus stressing upon supportive ligaments of uterus.

In present study, the spectrum of endometrial lesions is shown in Table 5. Most of the endometrium shows proliferative phase (37.6%) followed by atrophic endometrium (26.4%). The endometrial polyp was seen in 7 cases (5.6%). In these lesions, polypoid growth in endometrium was clinically confused for carcinoma. On gross examination, well circumscribed lesions ranging from 1 cm to 6 cm were noted in endometrial cavity. The cut section was brownish in most cases. On microscopy, polypoid lesion was lined on all sides by flattened surface endometrium. The core of polyp shows endometrial glands and stroma with many thick walled vessels. Gowri et al<sup>34</sup> found 4.2% incidence of endometrial polyps in a large study of 259 hysterectomy specimens. Other studies like Nayak et al<sup>35</sup> (0.6%) and Dayal et al<sup>32</sup> (1.8%) showed lower incidence. The endometrial hyperplasia was seen in 7 cases (5.6%) which is comparable to study by Dayal et al<sup>32</sup> (5%) but did not match with other studies like Nayak et al<sup>35</sup> (27.5%) and Gowri et al<sup>34</sup> (22.8%).

There were 38 ovarian specimens either unilateral or bilateral included in study. The most common lesion was benign non neoplastic cystic lesion (34.2%). These include simple cysts, corpus luteum cyst, chocolate cyst. A study by Prakash et al<sup>37</sup> found incidence of 41% for these lesions while Sawant et al<sup>36</sup> found incidence of 77% for these lesions. The incidence of teratoma did not match with any study. The cystadenomas are benign neoplastic lesions of the ovary. They include mucinous and serous cystadenoma and cystadenofibromas. We found incidence of 21.1% as against 17.5% by Sawant et al.<sup>36</sup>

Out of 38 fallopian tubes, 28 did not have any pathology which comprises 73.7%. A study by Bagwan et al<sup>38</sup> found no any pathology in 66.5% cases and pathology in 33.5% cases which matches with our

study. Most of the lesions in both studies were inflammatory. Identification of inflammatory pathology is important because it is one of the causes for infertility. Similarly, ectopic gestation is important cause of maternal mortality. We found incidence of 2.6% for ectopic gestation in our scenario while Bagwan et al<sup>38</sup> found incidence of 11.3% for the same.

## Conclusion

Female genital tract is source of various lesions and histopathology remains the primary diagnostic modality. Leiomyoma and adenomyosis remain the leading cause of morbidity in uterus among rural population of Maharashtra. Lesions of ovary and fallopian tube are equally important and should undergo histopathological evaluation. Frequency of malignant lesions is low in rural population.

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