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HISTOPATHOLOGICAL SPECTRUM OF LESIONS OF THE FEMALE GENITAL TRACT: A TWO YEAR RETROSPECTIVE STUDY IN A TERTIARY HOSPITAL OF PUNE, MAHARASHTRA.

Pathology

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ABSTRACT

Background: Female genital tract (FGT) lesions are among the most common conditions causing females to seek medical care and are associated with a high gynecological and reproductive morbidity. It is therefore desirable to study spectrum of lesions of FGT to streamline effective methods for its management and diagnosis. Hence, this study aimed at obtaining the histopathological spectrum of various lesions of the FGT and to evaluate the incidence of these neoplastic and nonneoplastic lesions. **Material and Methods:** It was a hospital based retrospective study conducted over a period of 2 years during which 500 specimens of female patients clinically diagnosed of female genital tract lesions were taken for detailed gross and histopathological examination. **Results:** Maximum cases were clinically diagnosed as DUB (28.3%). Commonest histopathological diagnosis was chronic nonspecific cervicitis (54%). Around 40% lesions were reported to be neoplastic out of which 89% were benign while 11% were malignant lesions. Leiomyoma was the most frequently occurring benign tumor (55%). The commonest malignancy associated with FGT was carcinoma cervix (6.4%). **Conclusion:** Community oriented screening programs including PAP smear and health education are mandatory for reducing the incidence of malignancies and pre-malignant lesions of FGT.

KEYWORDS

Histopathology, Spectrum, Neoplastic, Benign, Malignant.

INTRODUCTION

Diseases of the female genital tract are extremely common in clinical and pathology practice and include complications of pregnancy, inflammations, tumors, and hormonally induced effects.[1] Female genital tract lesions are among the most common conditions causing females to seek medical care, and are associated with a high gynecological and reproductive morbidity. Prompt and precise diagnosis of female genital tract lesions is essential to institute effective and complete therapy and prevent further lifelong complications. It is therefore desirable to study spectrum of lesions of female genital tract to streamline effective methods for its management and diagnosis.[2]

Anatomy of female genital tract is complex. The female genital tract (FGT) encompasses variety of organs and epithelial surfaces. The external genital organs include the mons pubis, labia majora, labia minora, Bartholin's gland, and clitoris. The internal genital organs form a pathway called genital tract. This pathway consists of the vagina, cervix, endometrium, uterus, fallopian tubes and ovaries.[2]

There is a worldwide variation in the distribution of various neoplasms of FGT. On a global basis, out of the first eight ranking cancers in females, the cancers of the female reproductive system rank as follows: 1st breast, 2nd cervix of the uterus , 7th ovary and 8th body of the uterus (3rd being colon/rectum, 4th stomach, 5th lung and, 6th oral cavity).[3] Almost 80% of the new cases of cervical cancer occur in the developing countries.[4] On the other hand, ovarian and endometrial cancers are the leading forms of female genital tract malignancies in the developed world.[5]

These international differences appear largely due to exogenous factors rather than due to inherited differences between populations. The cause is mainly due to different lifestyles, environmental, socio-cultural and economic factors. However, many of the female reproductive system malignancies remain silent killers because women are mostly unaware of the signs and symptoms associated with these tumors.[6] They usually come into medical attention only when they become larger in size or reach the advanced stages of the disease.

Additionally, the incidence and pattern of non-neoplastic and neoplastic lesions of the female genital tract vary according to different age groups and from region to region. Hence, the present study conducted to obtain the histopathological spectrum of various lesions of the female genital tract in a tertiary care population and to evaluate the incidence of these neoplastic and nonneoplastic lesions.

MATERIAL AND METHODS

It was a hospital based retrospective study conducted in the Department of Pathology at Padmashree DY Patil Medical College & Hospital Pimpri, Pune from July 2011 – September 2013. 500 specimens of female patients clinically diagnosed of female genital tract lesions presenting to OBGY, of Dr D Y Patil Medical College during this two-year period were enrolled in the study. The specimens were collected at the respective department and referred to Pathology Department for histopathology. Brief essential clinical history and findings were recorded from the patient's case paper.

Following the receipt of surgical specimens in 10% formalin at the Department of Pathology, a detailed gross examination including size, shape, consistency and external surface were recorded. Additional cuts were made depending on the size of the specimen and cut section morphology was recorded. Then the specimens were allowed to fix in 10% formalin for 24-48 hours. Multiple parallel sections through each half, about 1 cm apart were made and each surface was carefully examined.

The tissue bits from representative area were taken for histopathological examination and paraffin blocks were prepared. The number of blocks prepared depended upon the size and morphology of tumors. Multiple sections of 5 microns thickness were cut and routinely stained with haematoxylin and eosin stain. Detailed micro-anatomic features were studied and recorded. Finally associated microscopic lesions in the endometrium, cervix, fallopian tubes and ovaries were studied wherever they were present.

Statistical analysis: The collected data was compiled, tabulated and analyzed using statistical software SPSS, version-22. Descriptive statistics were computed with percentages, mean and standard deviation (S. D). Chi-square test was applied as applicable.

RESULTS

A total of 500 specimens of female genital tract lesions were observed in the present study.

Figure 1 illustrates the bar diagram showing the age-wise distribution of cases in the study group. The age group of the females ranged from 15 to 72 years with the mean age of 41.64± 0.44 years. Approximately 70% of the cases belonged to 31-50 years of age group.

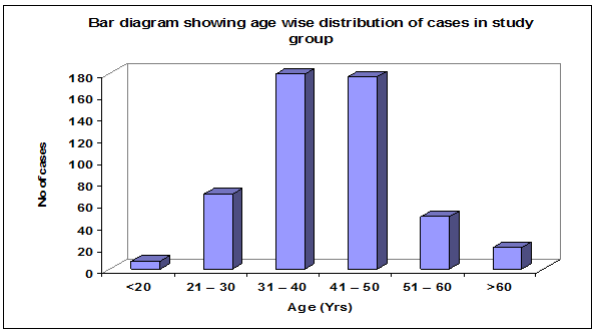


Fig 1: Bar diagram showing the age-wise distribution of cases. (N=500)

When the clinical diagnosis of the cases was cross tabulated with age, it was observed that most patients were between the ages of 31-50 years. Maximum cases were clinically diagnosed as DUB (28.3%) followed by Fibroid uterus (22%), whitish discharge (20.4%) and prolapse of uterus (20%). The association between these diagnoses and age was found to be non-significant (p=0.07). (Table 1)

Table 1: Age wise Clinical diagnosis in study group. (N=500)

Clinical diagnosis		Total	<20	21-30	31-40	41-50	51-60	>60	p-value
Fibroid uterus		110 (22%)	0	4	46	55	5	0	0.07
DUB		143 (28.6%)	4	17	63	47	9	3	
White discharge		102 (20.4%)	0	25	45	25	6	2	
Post-Menopausal bleeding		37 (7.4%)	0	0	3	20	8	6	
Uterine Prolapse		100 (20%)	0	4	26	39	23	8	
Dysmenorrhoea		12 (2.4%)	0	0	6	6	0	0	
Ovarian mass	Predominant cystic	48 (9.6%)	3	17	12	9	5	2	
	Predominant solid	6 (1.2%)		4			1	1	
Infertility		4 (0.8%)	0	3	1	0	0	0	
Post Coital bleeding		17 (3.4%)	0	0	6	8	2	1	

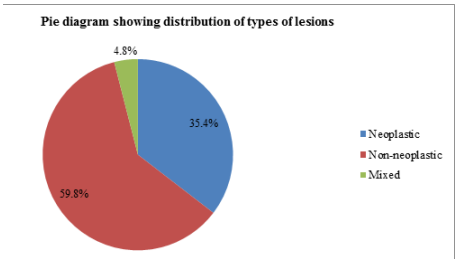
Table 2 demonstrates the histopathological diagnosis of the cases. Commonest histopathological diagnosis in the entire study group was chronic nonspecific cervicitis 270 (54%) followed by proliferative phase endometrium in 151 (30.2%) cases. Based upon the histopathological examination of the lesions in uterus, Proliferative Phase endometrium was seen in majority of the cases (30.2%) followed by Leiomyoma (22%) and Secretory Phase Endometrium (17.2%). Regarding cervical lesions, Chronic nonspecific cervicitis was observed in more than half of the cases (54%) while 2.6% of the cases were diagnosed with Squamous cell carcinoma of cervix. On histopathological examination of the fallopian tube, it was reported that maximum of the cases were ovarian cysts 54(10.8%) while 1.6% had Paratubal cyst.

Table 2: Histopathological diagnosis in study group. (N=500)

HPE diagnosis	Total	Percentage
Uterine lesions		
Proliferative Phase Endometrium	151	30.2
Secretary Phase Endometrium	86	17.2
Disordered Proliferative Phase Endometrium	3	0.6
Cystic/Senile atrophy of endometrium	53	10.6
Hyperplasia of Endometrium	15	3
Leiomyoma	110	22
Adenomyosis	78	15.6
Endometrial polyp	15	3
Endometrial Ossification	1	0.2
Endometrial adeno-carcinoma	5	1
Cervical lesions		
Chronic nonspecific cervicitis	270	54
Endocervical polyp	7	1.4
Squamous metaplasia	23	4.6
Dysplasia of cervix	4	0.8
Squamous cell carcinoma	13	2.6
Ovarian lesions		
Ovarian cyst	54	10.8
Granulometous salphingitis	1	0.2
Chronic salphingitis	2	0.4
Paratubal cyst	8	1.6

Figure 2 shows the types of female genital tract lesions among the study participants. There was a predominance of non neoplastic lesions i.e. 299 (59.8%) in the study group. However, the neoplastic lesions 177(35.4%) and mixed category 24 (4.8%) also constituted a major proportion.

Fig 2: Distribution of type of lesions in the study group. (N=500)



Regarding the distribution of neoplastic lesions of female genital tract among the patients, the benign lesions constituted the majority 178 (88.6%) while there were 23 (11.4%) malignant lesions. Maximum i.e. 70.22% (125 out of 178) benign lesions were found in the uterus. There were equal proportion of malignant lesions confined to endometrium and ovary (2.5%) each. In cervix, malignant neoplasms 13(6.4%) outnumbered the benign 4(2%). (Figure 3)

Fig 3: Multiple bar diagram showing distribution of type of neoplastic lesions in FGT (n=201).

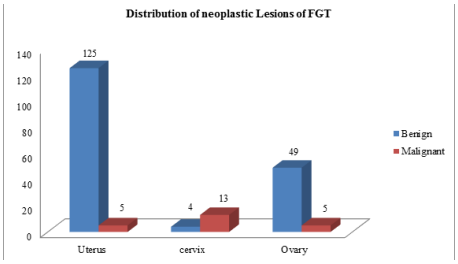


Table 3 describes the spectrum of neoplastic lesions of different parts of the female genital tract among the study group. Out of 201 neoplastic lesions, maximum benign lesions were confined to uterine corpus 125(62.5%) among which leiomyoma 125(55%) constituted the major group. This was followed by ovary where benign tumours were 49 (24.3%), out of which the maximum tumors were simple serous cyst adenoma 37 (18.4%). Amongst the malignant lesions, carcinoma cervix was the commonest (6.4%) followed by endometrial carcinoma (2.4%)

Table 3: Spectrum of Neoplastic lesions of different parts of FGT. (n=201)

Type of FGT lesion	Benign (n1=178)	Malignant (n2=23)
Uterus (Corpus)		
Leiomyoma	110 (55%)	-
Endometrial polyp	15 (7.5%)	-
Endometrial carcinoma	-	5 (2.4%)
Cervix		
Endocervical polyp	4 (2%)	-
Carcinoma cervix	-	13 (6.4%)
Ovary		
Mature teratoma	3 (1.4%)	-
Mucinous cystadenoma	7 (3.4%)	-
Simple serous cystadenoma	37 (18.4%)	-
Papillary serous cystadenoma	1(0.5%)	-
Thecoma	1(0.5%)	-
Yolk sac tumor	-	1 (0.5%)
Granulosa cell tumor	-	1 (0.5%)
Malignant mixed mullerian tumor	-	1 (0.5%)
Papillary serous cyst adenocarcinoma	-	2 (1.0%)

DISCUSSION

In the present study, majority of the patients were in the age group of 31-50 years with a mean age of about 42 years. This is similar to the study by Yogesh Neena and Bhaskar Honey where the maximum number of cases were found in the age group between 45 and 55 years with mean age of 45 years.[7]

The common clinical diagnoses in our patients were dysfunctional uterine bleeding (28.6%), fibroid uterus (22%), white discharge/PID (20.4%) and prolapse uterus (20%). These findings are congruent to the previous study[7] in which DUB (36.11%) was found to be the commonest indication of hysterectomy followed by fibroids (26.4%) while excessive discharge (77%) was the most common clinical diagnosis reported in case of cervical lesions in the study by Krishna Dubey et al.[8] Further, DUB and whitish discharge were relatively more common in younger age group of 31-40 years whereas Fibroid and uterine prolapse were seen more in higher ages(41-50 years). However, the association between these diagnoses and age was found to be non-significant. (p>0.05)

The histopathological spectrum related to corpus of uterus showed normal proliferative phase endometrium (30.2%) in maximum cases. The most common pathology of uterine lesions was leiomyoma (22%) followed by adenomyosis (15.6%) and endometrial polyp (3%). Leiomyomas are benign neoplasms composed of smooth muscle with variable amount of connective tissue. Infact, the commonest tumor occurring in the female genital tract in our study was leiomyoma comprising of more than 50% (110 out of 201) of the total neoplastic lesions which is in concordance to several studies where leiomyoma was the most common histopathological presentation.[3,5,6,7,9,10] Also, most common age for Leiomyoma in the present study was 40 to 50 years which is similar to studies done by Kumar N et al and Lahori M et al.[11,12]

Regarding the cervical pathology, chronic nonspecific cervicitis was the commonest HP diagnosis (54%). Carcinoma of cervix was seen in 2.6% cases. Similar findings were also obtained in the study by Talukder SI et al where the most common histopathological lesion was chronic cervicitis (87.80%) while squamous cell carcinoma of cervix was found in 2.44% of cases.[13] Several other studies have also stated that chronic non-specific cervicitis was the most frequent non-neoplastic cervical lesion which occurred in all the age groups of women studied.[8,14]

According to our study, although there was a predominance of non neoplastic lesions (59.8%) but the proportion of neoplastic lesions was as high as 40.2% which was much higher than the studies by Sood et al[15] (27.88%) and Gaikwad SL et al (29.78%).[16] This may be due to regional variations. Amongst the neoplastic lesions in our study, 88.8% were found to be benign while 11.2% were malignant lesions which is almost same as Khandekar S[5] and Kumar N et al[11] studies where benign lesions constituted 82.13% and 86.18% while malignant lesions were 17.87% and 13.82% respectively.

Regarding the spectrum of neoplastic lesions of different parts of the female genital tract, maximum benign lesions were seen in uterine corpus (62.5%). Leiomyoma (55%) was reported as the commonest benign lesion. Simple serous cystadenoma was most common benign lesion in ovary (18.4%). Carcinoma cervix was the commonest malignancy (6.4%) in our study.

Comparison of the incidences of the most common malignancies of different parts/organs of female genital tract reported in various studies in the Indian literature is shown in Table 4. Overall, the most common benign lesion of FGT was Leiomyoma while commonest malignant lesion was Carcinoma cervix (SCC).

Table 4: Comparison of the incidence of commonest malignancies of different parts of FGT across various studies.

STUDIES	UTERUS (corpus)		CERVIX		OVARY	
	Benign	Malignant	Benign	Malignant	Benign	Malignant
Present study (Maharashtra)	Leiomyoma (55%)	Endometrial cancer (2.4%)	Endocervical polyp (2%)	Squamous cell Carcinoma (6.4%)	Simple serous cystadenoma (18.4%)	Papillary serous cyst adenocarcinoma (1%)
Khandekar S et al[5] (Maharashtra)	Leiomyoma (51.2%)	Endometrial cancer (3.38%)	Papillary variant (1.93%)	Squamous cell Carcinoma (6.28%)	Serous cystadenoma (8.21%)	Serous cystadenocarcinoma (1.45%)
Kumar N et al[11] (Uttar Pradesh)	Leiomyoma (64.9%)	Endometrial cancer (2.65%)	-	Squamous cell Carcinoma (5.30%)	Serous cystadenoma (9.93%)	Mucinous cystadenocarcinoma (1.99%)
Sood et al[15] (Haryana)	Leiomyoma (44.82%)	Endometrial cancer (4.82%)	Endocervical polyp (9.65%)	Squamous cell Carcinoma (4.82%)	Serous cystadenoma (3.44%)	Mucinous cystadenocarcinoma (0.68%)
Paul SN et al[17] (Jharkhand)	Leiomyoma (64.0%)	-	Leiomyoma (1%)	Squamous cell Carcinoma (7.0%)	Mature cystic teratomas (13.0%)	Immature teratoma (1%)

The slight differences in the pattern of gynecological malignancies across the studies may be attributed to varied ethnicity, regional differences, family history, parity, usage of oral contraceptive pills and hormone replacement therapy etc.

CONCLUSION

The histopathological analysis of our study revealed that leiomyoma was the most frequently occurring benign tumor while the commonest malignancy associated with FGT was carcinoma cervix. Although the study had a relatively less sample size, yet we were able to decipher the spectrum of various histopathological lesions arising from different parts/organs of the female genital tract. Nonetheless, larger case studies are needed to confirm our findings. More community-oriented screening programs including PAP smear and health education might help in reduction of morbidity and mortality from gynecological lesions and associated malignancies.

REFERENCES

1. Loran HE, Edyta CP. The Female Genital Tract. Kumar V, Abbas A, Fausto N, Aster, editors. Robbins and Cotran Pathologic Basis of disease. 8 th ed. New Delhi: Elsevier; 2010. pp. 1005 - 60.
2. Robert JK. Blaustein's Pathology of Female Genital Tract. 5 th ed. New Delhi: Springer; 2010. pp. 276.
3. Mohammad A, Makaju R. Retrospective histopathological analysis of various neoplasms of the female reproductive system (FRS) seen at the Kathmandu University Teaching Hospital, (KUTH) Dhulikhel, Nepal. KUMJ. 2006;4(5):48-53.
4. Stewart BW, Kleihues P (Eds.). Cancers of the female reproductive tract. In: World Cancer Report. Lyon, France: IARC Press;2003.
5. Sanjay Khandekar , Nilima Lodha. Histopathological spectrum of neoplastic lesions of female reproductive system seen at a Rural Tertiary Care Centre in India. Int J of Biomed and Advance Res. 2018; 9(9): 328-331. DOI: https://doi.org/10.7439/ijbar.v9i9.4925
6. Singh M, Jha KK, Poudyal P, Kafle SU. Histopathological spectrum of neoplastic lesions of female reproductive system-a two-year experience in Eastern Nepal. Int J Res Med Sci 2018; 6:426-30.
7. Yogesh Neena, Bhaskar Honey, "Clinico-pathological correlation of hysterectomy specimens for abnormal uterine bleeding in rural area". Journal of Evolution of Medical and Dental Sciences. 2013; 2(39): 7506-7512.
8. Krishna Dubey, Jayadeep Garewal, Naveen Kumar N, Raksha Sharma,Arpita. Histopathological study of Non Neoplastic lesion in cervix at tertiary center. Int J Med Res Health Sci.2016; 5(2):42-49.
9. Forae GD, Aligbe JU. Histopathological patterns of endometrial lesions in patients with abnormal uterine bleeding in a cosmopolitan population. J Basic Clin Reprod Sci. 2013; 2:101-4.
10. Baral R, Sherpa P, Gautam D. Histopathological analysis of hysterectomy specimens: one year study. Journal Pathology of Nepal. 2017;7:1084 – 1086.
11. Kumar N, Bansal M, Sharma HB, Gupta M, Mishra P. Histopathological spectrum of neoplastic tumours of female reproductive system –A two year study in a rural tertiary care centre in India. J Diagn Pathol Oncol. 2019;4(2):134-137.
12. Lahori M, Malhotra A, Sakul, Khajuria A, Goswami K.Clinicopathological spectrum of uterine leiomyomas in a state of Northern India: a hospital based study.Int J Reprod Contracept Obstet Gynecol. 2016;5(7):2295-99.
13. Talukder SI, Haque MA, Huq MH, Alam MO, Roushan A, Noor Z, Nahar K. Histopathological analysis of hysterectomy specimens. Mymensingh Med J.2007;16(1):81-4.
14. Olutoyin. G, Omoniyi E, Steven A, Osasan, Olusegun. S. Ojo. Non-neoplastic diseases of the cervix in Nigerians : A histopathological study. African Health Sciences. 2006; 6(2):76-80.
15. Sood S, Gulia SP, Sharma S. Incidence of neoplastic lesions of female genital tract in a tertiary care centre: A 3 year retrospective study. International Journal of Clinical and Diagnostic Pathology. 2020;3(1):06-11. DOI: https:// doi. org/ 10.33545/ pathol.2020.v3.i1a.145
16. Gaikwad SL, Deshmukh VV, Bhokare SB, Sharma PS, Narwade SB. Clinicopathological spectrum of female genital tract neoplasms-A rural tertiary care hospital study. MedPulse International Journal of Pathology. 2017; 4(3):59-63.
17. Paul SN, Kumar S, Murmu S, et al. Histopathological study of neoplastic lesions of female genital tract in Kolhan, Jharkhand. J. Evid. Based Med. Healthc. 2018; 5(40), 2833-2836. DOI: 10.18410/jebmh/2018/581.