ISSN- O: 2458 - 868X, ISSN–P: 2458 – 8687
National Library of Medicine - ID: 101731606

International Journal of Medical Science and Innovative Research (IJMSIR)
IJMSIR : A Medical Publication Hub
Available Online at: www.ijmsir.com
Volume – 6, Issue – 2, March – 2021 , Page No. : 223 - 230

Histopathological spectrum of cervical lesions at Jhalawar Medical College

[1]Dr Brajendra Shakyawal, Assistant Professor, Department of Pathology, Jhalawar Medical College, Jhalawar.

[2]Dr Shilpa Pareta, Post graduate student, Department of Pathology, Jhalawar Medical College, Jhalawar.

[3]Dr Rishi Diwan, Senior Professor Department of Pathology, Jhalawar Medical College, Jhalawar.

[4]Dr Chetna Jain, Senior Professor and HOD, Department of Pathology, Jhalawar Medical College, Jhalawar.

Corresponding Author: Dr Shilpa Pareta, Post graduate student, Department of Pathology, Jhalawar Medical College, Jhalawar.

Citation this Article: Dr Brajendra Shakyawal, Dr Shilpa Pareta, Dr Rishi Diwan, Dr Chetna Jain, "Histopathological spectrum of cervical lesions at Jhalawar Medical College ", IJMSIR- March - 2021, Vol – 6, Issue - 2, P. No. 223 – 230.

Type of Publication: Original Research Article

Conflicts of Interest: Nil

Abstract

Background: The study was conducted to determine the incidence of neoplastic as well as non neoplastic lesions of cervix along with their spectrum and to explore their relation with various risk factors.

Methodology: This study was conducted as an observational study on the hysterectomy specimens and cervical biopsies received in Department of Pathology, Jhalawar Medical College, Jhalawar over a period of one year. All the specimen were subjected to gross and H&E examination. Special stain was used when required. Various lesions were histopathologically classified and studied according to WHO classification.

Results: Benign lesions were observed in majority of cases (86.8%) whereas preneoplastic and neoplastic lesions were documented in 8% and 5.3% cases respectively. Among benign lesions, HPE findings in majority of cases was suggestive of chronic non specific cervicitis whereas mild dysplasia (CIN I; LSIL) was most common premalignant lesions (7%). Among neoplastic lesions, Non keratinizing squamous cell carcinoma was most common lesion (3.8%). Postmenopausal bleeding and white discharge were observed in significantly higher proportions of females with neoplastic lesions ($p<0.01$).

Conclusion: Cervical specimen in the form of hysterectomy specimen or biopsy are most frequently subjected to histopathological examination in routine practice. Though majority of the cervical lesions are non neoplastic or inflammatory in nature, premalignant and malignant neoplastic lesions are not uncommon. Age and parity are important risk factors for cervical neoplastic lesion but prevalence of other risk factors may interfere with early development of cervical cancer even in nulliparous females. Thus, detailed history regarding all the risk factors must be elicited.

Keywords: hysterectomy, biopsy, cervical lesions, neoplastic lesions, cervicitis

Introduction

Cervix, the elongated fibromuscular portion of uterus, acts as gateway for various infections of urogenital tract and is vulnerable to various non neoplastic and neoplastic lesions.[1,2] Majority of non neoplastic lesions of cervix are inflammatory in nature which may be due

to repeated sexual trauma and being easily accessible to various infectious organisms like bacteria, virus, protozoa and fungus. Infection with human papilloma virus is significantly associated with condyloma accuminata, preinvasive lesions of cervix i.e. cervical intraepithelial neoplasia (1, 2 and 3) which eventually lead to invasive cancer.[3] According to Globocan (2018), cancer cervix is second most common cancer among women in India.[4]Overall, cancer cervix account for 22.86% of all cancers among women whereas these cancers attribute to 12% of cancers irrespective of gender.[4] Globocan (2018) data reported 96922 new cases of cervical cancer in 2018 in India. Cervical cancer attributed to 60078 deaths among female in 2018.[4]

Amongst various specimen from Gynecology Department, uterine cervix is the most common specimen which is subjected to histopathological examination.[5]Histopathology is the reference standard for the diagnosis of pre-invasive (cervical intraepithelial neoplasms) and neoplastic lesion of cervix.[6] The accurate and early diagnosis of cervical lesions at pre-invasive stage is important as cervical cancer is largely preventable cancer. The precancerous state like cervical intraepithelial neoplasia (CIN) can be evaluated by cervical epithelium on histopathology. CIN I are considered as low grade whereas CIN II and III are considered high grade squamous intraepithelial lesions. CIN I on histopathology is characterized by dysplastic changes in lower one third epithelium. CIN II and CIN III, however is characterized by dysplastic changes involving more than lower one third to entire thickness of the epithelium. When dysplastic changes involve basement membrane, this stage is called invasive carcinoma.[7]

Thus histopathological examination of cervical specimen is helpful in determining type of lesion, i.e. neoplastic or non-neoplastic, extent of lesion, determining the treatment of cervical lesion and classifying the cervical lesions based upon patterns of microscopic organization of cells in tissue sections from biopsy or surgical specimens.[8] With the above background, the present study was conducted at tertiary care centre to assess the spectrum of cervical lesions with detection of carcinoma and to explore their relation with various risk factors. The study also aimed to determine the incidence of neoplastic as well as non neoplastic lesions of cervix.

Methodology

This study was conducted as an observational study on the hysterectomy specimens and cervical biopsies received in Department of Pathology, Jhalawar Medical College, Jhalawar over a period of one year. All cervical biopsies and cervix of hysterectomy specimens of females attending Heera Kunwar Baa Mahila Chikitsalaya and private hospitals of Jhalawar district were included whereas specimen of female child before menarche, pregnant uterus and ruptured uterus were excluded from the study.

After obtaining ethical clearance from Institutes ethical committee, all the hysterectomy specimens and cervical biopsies received from department of Obstetrics and Gynaecology of our institute and private hospital were evaluated at Department of Pathology. Age of female was recorded from the accompanied form. All the specimen were assessed and gross findings such as appearance of exocervix, sqaumocolumnar junction, endocervical canal and sny growth or polyp if present were noted.

One section was obtained from anterior half and other from posterior half of cervix. In case of cervical

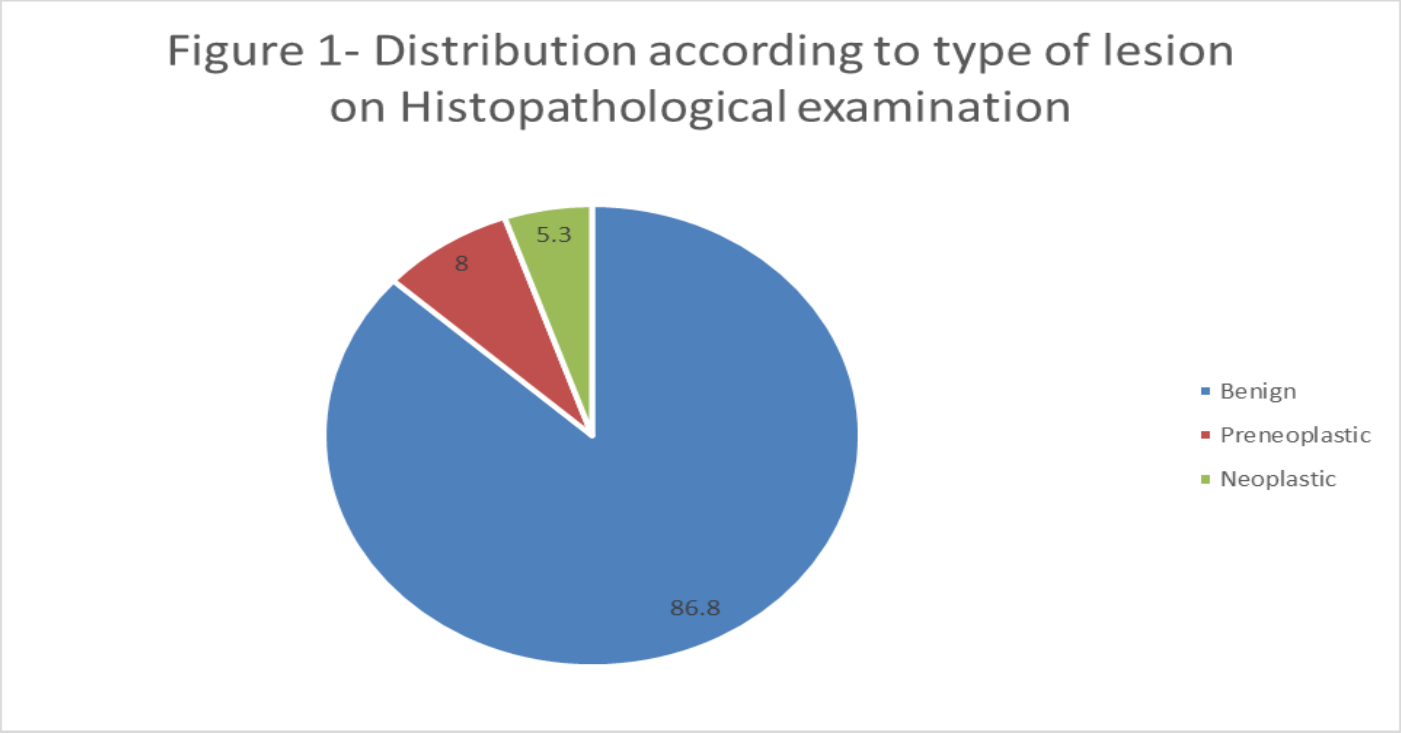
carcinoma, cervix from corpus was amputated about 2.5 cm above the external os with the help of sharp knife. Later, the cervix was cut by making parallel longitudinal sections, 2-3 mm apart, along the plane of the endo cervical canal start in gat the 12o clock position and moving clock wise. All the specimens were fixed in 10% neutral buffered formalin. After morphological examinations, tissue were processed in Automated tissue processor with paraffin embedding, sectioning and staining by Hematoxylin and Eosin stains. Special stain was used when required. Various lesions were histopathologically classified and studied according to WHO classification.

Statistical Analysis

Data was compiled using Ms Excel and analysed using IBM SPSS software version 20. Categorical data was expressed as frequency and percentage whereas numerical data was expressed as mean and SD. Chi square test was used to assess the association of these lesions with various factors. P value less than 0.05 was considered statistically significant.

Results

A total of 400 samples of hysterectomy and cervical biopsies received in department of pathology, Jhalawar Medical College, Jhalawar were analysed for non neoplastic and neoplastic lesions. Mean age of patients whose hysterectomy or biopsy specimen was received was 44.7±9.6 years.



Histopathology revealed benign lesions in majority of cases (86.8%) whereas preneoplastic and neoplastic lesions were documented in 32 (8%) and 21 (5.3%) cases respectively.

Table 1: Distribution according to Histopathological spectrum of cervical lesions

HPE finding		Frequency	Percent
Benign	Acute cervicitis	2	0.5
	Chronic cervicitis	172	43.0
	Chronic cervicitis with nabothian cyst/ follicle	58	14.5
	Chronic Cervicitis with tunnel clusters	5	1.3
	Chronic cervicitis with squamous metaplasia	54	13.5
	Chronic cervicitis with squamous metaplasia with nabothian cyst/ follicle	20	5.0
	Endocervical polyp	3	0.8
	Follicular cervicitis	3	0.8
	Follicular cervicitis with squamous metaplasia	1	0.3
	Microglandular hyperplasia	1	0.3
	Polypoidal Endocervicitis	27	6.8
	Polypoidal Endocervicitis with tunnel cluster	1	0.3
Preneoplastic	Carcinoma in situ	1	0.3
	Mild Dysplasia (CIN I; LSIL)	28	7.0
	Moderate dysplasia (CIN II; HSIL)	1	0.3
	Severe dysplasia (CIN III; HSIL)	2	0.5
Neoplastic	KSCC	4	1.0
	NKSCC	15	3.8
	NKSCC with neuroendocrine	1	0.3
	VSCC	1	0.3

Among cases with benign lesions, HPE findings in majority of cases was suggestive of chronic non specific cervicitis whereas mild dysplasia (CIN I; LSIL) followed by severe dysplasia (CIN III; HSIL) were most common premalignant lesions observed in 7% and 0.5% cases respectively. Among neoplastic lesions, Non keratinizing squamous cell carcinoma was most common lesion (3.8%).

Table 2 : Association of cervical lesions with baseline variables

Age		Benign (%)	Preneoplastic (%)	Neoplastic (%)	P value
Age	21-30	26 (7.5)	2 (6.2)	3 (14.3)	0.21
	31-40	107 (30.8)	11 (34.4)	7 (33.3)	
	41-50	150 (43.2)	10 (31.2)	6 (28.6)	
	51-60	53 (15.3)	5 (15.6)	3 (14.3)	
	>60	11 (3.2)	4 (12.5)	2 (9.5)	
	Mean	44.3±9.1	47.4±12.3	48.1±3.9	

Parity	1	1 (0.3)	0 (0)	0 (0)	0.77
	2	256 (73.8)	27 (84.4)	16 (76.2)	
	3	52 (15)	5 (15.6)	2 (9.5)	
	4	37 (10.7)	0 (0)	3 (14.3)	
	5	1 (0.3)	0 (0)	0 (0)	
Chief complaints	PMB	54 (15.6)	9 (28.1)	10 (47.6)	0.001
	Discharge	14 (4)	2 (6.2)	4 (19)	0.009
	HMB	86 (24.8)	9 (28.1)	4 (19)	0.76
	Pain abdomen	133 (38.3)	8 (25)	6 (28.6)	0.24
	Something coming out PV	61 (17.6)	7 (21.9)	1 (4.8)	0.25

Mean age of patients with benign lesions was 44.3±9.1 whereas that of females with prenoplastic and neoplastic lesions was 47.4±12.3 and 48.1±3.9 years respectively. Majority of females with benign lesion belonged to 41 to 50 years (43.2%), maximum females with preneoplastic and neoplastic lesions belonged to 31 to 40 years (34.4% and 33.3% respectively). Majority of females were para 2 irrespective of histology of cervical lesions. Test of significance (chi square test) showed no statistically significant association of age and parity with cervical lesions ($p>0.05$). Postmenopausal bleeding (PMB) and white discharge were observed in significantly higher proportions of females with neoplastic lesions (47.6% and 19% respectively) as compared to benign and preneoplastic lesions ($p<0.01$). However no such association was observed with other clinical features ($p>0.05$).

Discussions

Uterine cervix is vulnerable for various non neoplastic as well as neoplastic lesions as it act as gateway for various urogenital infections.[1,2] Though, majority of lesions of uterine cervix are inflammatory in nature, uterine cervix is the most common specimen which is subjected to histopathological examination during the routine practice.[6] Histopathological examination of uterine cervix may help in determining extent of lesion, nature of lesion, and classifying the lesions based upon patterns of microscopic organization of cells in tissue sections.[8]

Our study revealed that majority of lesions were benign (86.8%) whereas about 8% and 5.3% lesions were preneoplastic and neoplastic respectively. Chronic non specific cervicitis (43%) was most common benign lesion followed by chronic non specific cervicitis was associated with nabothian cyst or nabothian follicle and squamous metaplasia in 14.5% and 13.5% cases respectively. Mild dysplasia (CIN I or LSIL) was most common among preneoplastic and non keratinizing squamous cell carcinoma was most common neoplastic lesion (3.8%) in present stduy. The findings of present study were concordant with the findings of Reddythota et al in which authors documented that majority i.e. 86.6% cases were non neoplastic whereas about 13.4% cervical lesions were neoplastic. Among various non neoplastic lesions, chronic non-specific cervicitis was the most common whereas among neoplastic lesion, squamous cell carcinoma was most common lesion.[9] However, Kaur et al also documented inflammatory lesions to be most common among various

hysterectomy specimen (74.6%). This was followed by glandular hyperplasia (14.6%) and metaplasia (7.4%).[10] Gupta et al documented contrasting finding as compared to present study i.e. they observed malignant lesions in 74% specimen and 36% specimen revealed premalignant lesions. Among premalignant lesions, Cervical Intraepithelial Neoplasia (CIN) 1 corresponding to mild dysplasia was most common (36.1%), whereas among malignant lesions, squamous cell carcinoma (85.1%) was most common.[11] Priyadarshini et al also observed findings similar to present study, i.e. majority of cases had chronic nonspecific cervicitis (48%) whereas chronic polypoidal endocervicitis, and squamous metaplasia was observed in 20% and 36% cases respectively. Other cervical lesions included endocervical glandular hyperplasia (4%), microglandular adenosis (3.2%), tunnel clusters (0.4%) and mesonephric rests (0.4%).[12] It has been documented that non neoplastic lesions are common in reproductive age group whereas prevalence of neoplastic lesions increase with advancing age.[13] In present study, though, the mean age of patients with benign lesions (44.3±9.1 years) was lower as compared to those with prenoplastic (47.4±12.3 years) and neoplastic lesions (48.1±3.9 years), but the observed difference was statistically insignificant ($p>0.05$). Similarly, Gupta et al observed a progressive increase in mean age of diagnosis from CIN 1 to invasive carcinoma.[11] This has been attributed to long latent period for transition of lesions of cervix from premalignant to malignant one. Norazizah et al however observed statistically significant differences in age of patients with precancerous and cancerous lesions. They documented that premalignant lesions are observed in women of less than 35 years of age whereas females with more than 35 years of age have high risk of developing malignant lesions.[14] These findings were contrasting to findings of present study. The observed difference between present study and reference study could be attributed to presence of other risk factors such as intake of OCP, early age at coitus, multiple sexual partners, other STD infection, family history etc. which could not be elicited.

The risk factors associated with cervical cancers include Human Papilloma Virus (HPV) that could be observed in females with other risk factors including early age at coitus, multiple sexual partners, oral contraceptive pills use, higher parity especially more than 3, low immunity etc.[15] Though high parity is one of the risk factor for cervical cancer, our study documented no significant difference in gravida and parity status among patients with benign, pre-neoplastic as well as neoplastic lesions ($p>0.05$). Our study findings were contrasting to the findings of Jensen et al in which parity and number of pregnancy were significantly associated with higher risk of cervical neoplastic lesions ($p<0.05$).[16] The observed difference in the findings of present study and reference study could be explained by limitation of our study i.e. patients could not be interviewed directly, only information and risk factors documented in requisition form along with specimen could be elicited.

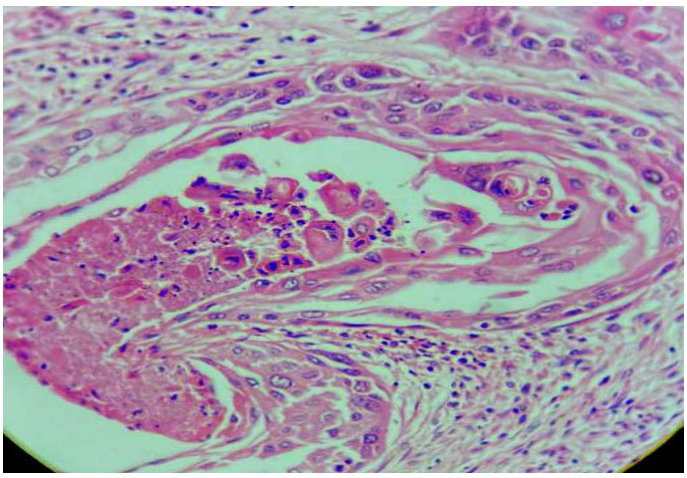
Post coital bleeding and post-menopausal bleeding are clinical features which may indicated malignant nature of cervical lesions. In present study, postmenopausal bleeding as well as white discharge were significantly associated with neoplastic lesions i.e. they were observed in 47.6% and 19% respectively in patients with neoplastic lesions ($p<0.01$). Similarly, Aziz et al documented postmenopausal bleeding and irregular Vaginal bleeding in 30.35% and 48.21% patients with neoplastic lesions.[17] Our study findings were also

supported by findings of Supriya et al in which irregular bleeding per vaginum including post coital and post-menopausal bleeding and blood stained white discharge was observed in females with cervical lesions.[6]

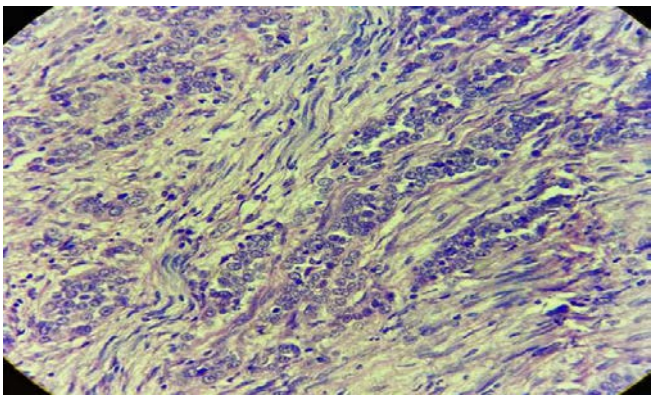
Conclusion

Cervical specimen in the form of hysterectomy specimen or biopsy are most frequently subjected to histopathological examination in routine practice. Though majority of the cervical lesions are non neoplastic or inflammatory in nature, premalignant and malignant neoplastic lesions are not uncommon.

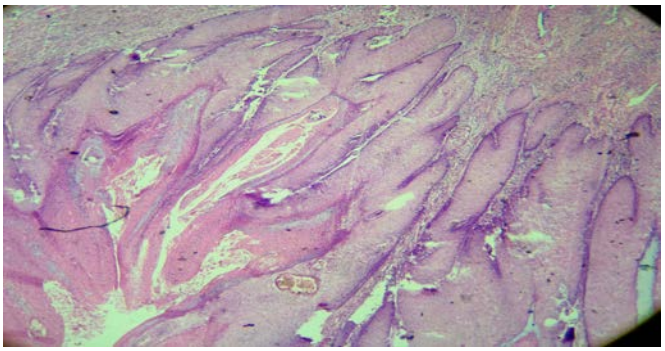
Chronic non-specific cervicitis is most common non neoplastic lesions which is associated with white discharge and irregular vaginal bleeding. However, mild dysplasia and squamous cell carcinoma are common among pre neoplastic and neoplastic lesions. Age and parity are important risk factors for cervical neoplastic lesion but prevalence of other risk factors may interfere with early development of cervical cancer even in nulliparous females. Thus, detailed history regarding all the risk factors must be elicited.



Well differentiated squamous cell carcinoma (keratinizing type)



Squamous cell carcinoma with neuroendocrine features



Verrucous cell carcinoma

References

1. Saini S, Kanetkar SR. Histopathological study of lesions of uterine cervix. J Evid. Based Med. Healthc. 2016;3(103):2349-562.
2. Bangera IS. Histopathological Study of Uterine Cervix. Int. J of Sc. & Res. 2015; 6(6):1183-5.
3. Bosch FX, Lorincz A, Muñoz N, Meijer CJ, Shah KV. The causal relation between human papillomavirus and cervical cancer. Journal of clinical pathology. 2002 Apr 1;55(4):244-65.
4. Cervical Cancer. Globocan 2018: India Factsheet. Available from http://cancerindia.org.in/globocan-2018-india-factsheet/ Last accessed on 4th November 2020.
5. Guidelines for Cervical Cancer Screening Programme. National cancer control Programme. Available from https://screening.iarc.

fr/doc/WHO_India_CCSP_guidelines_2005.pdf Last accessed on 4th November 2020.

6. Supriya B.R, Patel R, Patel M. Histopathological evaluation of Non-Neoplastic and Neoplastic Lesions of Uterine Cervix at tertiary care centre. Trop J Path Micro 2019;5(3):177-82.
7. Golbang P, Scurry J, de Jong S, McKenzie D, Planner R, Pyman J, Davoren R. Investigation of 100 consecutive negative cone biopsies. BJOG: An International Journal of Obstetrics & Gynaecology. 1997 Jan;104(1):100-4
8. Jenkins D. Histopathology and cytopathology of cervical cancer. Disease markers. 2007 Jan 1;23(4):199-212.
9. Reddythota ss, naik ssv, neeraja m, bhavani c, rani c. Histopathological spectrum of lesions of cervix in a tertiary care hospital: a retrospective study. Int. J of sci res. 2020. 9 (8). 9-11.
10. Kour b, kaur a. Histopathological spectrum of non-neoplastic lesions in uterine cervix – a one year retrospective study. Int. J. Adv. Res. 2019. 7(7), 1040-4
11. Gupta M, Basavaraj PK. Histopathological Spectrum of Premalignant and Malignant Lesions of Uterine Cervix. National Journal of Laboratory Medicine. 2018.17 (1) 19-26.
12. Priyadarshini D. Histopathological Spectrum of Non-Neoplastic Uterine Cervical Lesions in a Tertiary Care Centre. Annals of Pathology and Laboratory Medicine. 2017 Jul 5;4(3):A303-09.
13. 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.
14. Norazizah R, Khofiyah N. Age and parity with pre-cancer lesions in cervical cancer foundation of South Kalimantan Indonesia region 2016-2017. International Journal of Health Science and Technology. 2019 Jul 30;1(1):83-9.
15. Makuza JD, Nsanzimana S, Muhimpundu MA, Pace LE, Ntaganira J, Riedel DJ. Prevalence and risk factors for cervical cancer and pre-cancerous lesions in Rwanda. Pan African Medical Journal. 2015;22(1).
16. Jensen KE, Schmiedel S, Norrild B, Frederiksen K, Iftner T, Kjaer SK. Parity as a cofactor for high-grade cervical disease among women with persistent human papillomavirus infection: a 13-year follow-up. Br J Cancer. 2013 Jan 15;108(1):234-9.
17. Aziz N, Yousfani S. Pattern of presentation of cervical carcinoma at Nuclear Institute of Medicine and Radiotherapy, Pakistan. Pak J Med Sci. 2013 May;29(3):814-7.