International Journal of Clinical and Diagnostic Pathology

ISSN (P): 2617-7226
ISSN (E): 2617-7234
www.patholjournal.com
2020; 3(1): 404-408
Received: 05-01-2020
Accepted: 07-02-2020

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Management of abnormal Pap smears in reproductive age group

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DOI: https://doi.org/10.33545/pathol.2020.v3.i1f.228

Abstract
Background: Human Papilloma Virus has garnered a great deal of attention in the gynaecologic literature over the past decade, primarily as it relates to abnormal pap smears. Cervical cancer is the leading cause of death in women in developing countries like India. It is preventable by regular screening by Pap smear and can be detected at pre-invasive stage. Thus, reducing the morbidity and mortality related with cervical cancers.
Objective: This study aims at detecting the prevalence and current trends of various epithelial cell abnormalities (ECAs) in females of reproductive age group in a medical college hospital.
Materials and Methods: This is a retrospective study conducted in a medical college hospital between August 2017 and July 2019. A total of 6,104 cases comprising 4,880 conventional and 1224 liquid-based cytology Pap smears were included in the study. Clinical data and history of the patients were retrieved. All cases were reported according to Bethesda system 2014. Results: Among 6,104 cases, 163 Pap smears were unsatisfactory, 5816 Pap smears were negative for intraepithelial lesion/malignancy, and 124 cases had ECA.
Conclusion: The Pap smear has traditionally been the test we use to help screen patients for dysplasia. Over the past decade, additional tests which can detect oncogenic HPV have become commonplace and are now often performed in conjunction with pap smears. Large hospital-based studies are required for proper implementation of health services and for the selection of a feasible as well as sensitive screening test for early detection of cervical dysplasia which can be helpful in decreasing the burden of cervical cancer in our community.

Keywords: Cervical Cancer, Low-grade Squamous Intraepithelial Lesion, High-Grade Squamous Intraepithelial Lesion, Pap smear.

Introduction
HPV, human papilloma virus is a sexually transmitted virus that is extremely common, especially in reproductive age women less than 30 years of age. It is estimated that 80% of sexually active women will have HPV at some point in their lifetime. At any given moment in time, 25-30% the population between ages 14 and 59 can be found to harbour the virus. However, the highest prevalence occurs in women between the ages of 20-24, where it approaches 45%. The primary mode of transmission is through sexual contact. It is the second most common cancer after breast cancer in India with 96,922 new cases and 60,018 deaths in 2018 [1]. Female in developing countries generally visit to gynaecology department only when symptomatic with pain abdomen, discharge per vaginum, or menstrual abnormalities [2]. Rarely, they come for routine screening for the detection of cervical abnormalities. Unfortunately, prevention of transmission is extremely difficult. Unlike other commonly known sexually transmitted infections (such as chlamydia, gonorrhoea, herpes, HIV), condoms and other barrier methods are not very effective at preventing the spread of HPV. Consequently, other than abstinence, our ability to curtail the transmission of HPV is extremely limited. Cervical Pap smear is a sensitive, painless, cost effective, and outdoor patient department (OPD) procedure widely done for screening of cervical lesions. Cervical cancer is preventable by timely treatment of pre-invasive lesions. Routine Pap screening guidelines if followed results in significant decrease in morbidity and mortality associated with cervical cancers. Follow-up with repeat Pap in 6 or 12 months is done as per guidelines if any epithelial abnormality is present [3]. Many centers follow Bethesda system (2014) for Pap smear reporting, resulting in uniformity in reporting format [4]. The present study aims to evaluate the spectrum of epithelial cell abnormalities (ECAs) in females attending a medical

college hospital in south central India. Education is therefore our best weapon against the Virus and its potential impact on our health. The follow-up of patients after Pap smear and treatment needs to be emphasized for the success of any cervical screening programme.

Materials and methods

This is a retrospective study done from August 2017 to July 2019 in a medical college hospital in semi urban area of southcentral India. All cases received in the department of gynaecology and pathology were included in this study. It was a mixture of cases coming for routine screening, incidental screening, as well as camp screening. A total of 6,104 cases comprising 4,880 conventional and 1224 liquid-based cytology (LBC) Pap smears were reviewed and reported by experienced pathologists. LBC Pap smear was collected and stained by Surepath™ method, and conventional smear was stained by automated linear Pap Stainer. Evaluation of the Pap smears was done by the Bethesda system (2014) [4]. Permission was granted by the ethical committee to conduct the study,

Results

The most common age of presentation was between the third and fourth decade ranging from 18 years to 80 years. The presenting complains were vaginal discharge, pain abdomen, abnormal uterine bleeding, fibroid uterus, and cervical polyp. Out of 6,104 Pap smears, 163 (2.67%) smears were unsatisfactory for evaluation, 5816 (95.28%) smears were negative for intraepithelial lesion/malignancy (NILM), and 124 (2.03%) Pap smears showed features of ECA [Table 1]. Among these 124 cases, maximum cases (41, 0.67%) were of atypical squamous cell of undetermined significance (ASCUS). There were 22 cases (0.37%) of low-grade squamous intraepithelial cell lesion (LSIL) [Figure 1a and b], 12 cases (0.21%) of high-grade squamous intraepithelial cell lesion (HSIL) [Figure 2a and b], 13 cases (0.22) of squamous cell carcinoma [Figure 3], and 9 cases (0.16%) of atypical squamous cell cannot exclude HSIL (ASC-H). Glandular cell abnormalities were noted in 27 cases, of which 8 (0.137) were atypical glandular cell favouring neoplastic, 16 (0.27%) were atypical glandular cell not otherwise specified, and 3 cases (0.06%) were of adenocarcinoma [Table 1]. Of the 5816 NILM Pap smears, the most common finding was non-specific inflammation which was present in 1256 Pap smears. Among these 1256 inflammatory Pap smears, 153 were associated with infection with the most common infection being bacterial vaginosis in 104 followed by candidiasis in 24 cases. Eighteen cases were of trichomonas vaginalis, three cases of herpes simplex virus infection, and two cases of microfilariasis.

Table 1: Evaluation of cervical Pap smear and pattern of ECA

Entity	Pap smears	
	Number	Percentage
Total cases	6104	100
ASCUS	41	0.667
ASC-H	09	0.163
LSIL	22	0.366
HSIL	12	0.209
SCC	13	0.255
AGC-NOS	16	0.268
AGC-FN	08	0.137
Adenocarcinoma	3	0.059
NILM	14,153	92.68
Unsatisfactory	793	5.19

SCC: Squamous cell carcinoma, ECA: Epithelial cell abnormalities, ASCUS: Atypical squamous cell of undetermined significance, ASC-H: Atypical squamous cell cannot exclude HSIL, LSIL: Low-grade squamous intraepithelial cell lesion, HSIL: High-grade squamous intraepithelial cell lesion, AGC-NOS: Atypical glandular cell not otherwise specified, AGC-FN: Atypical glandular cells favoring neoplasia, NILM: Negative for intraepithelial lesion/malignancy

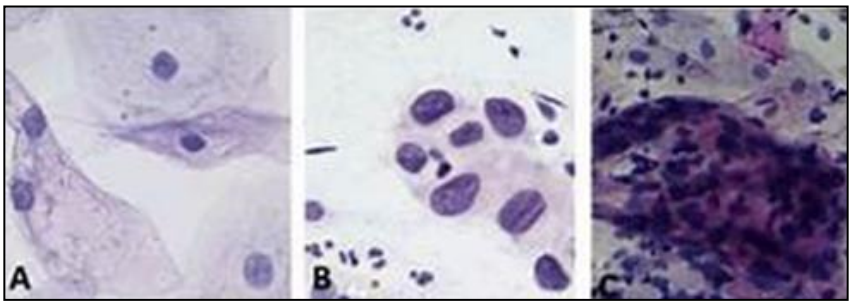

Fig 1: (a) Normal Pap smear image (b) Image of Pap smear with malignant cells (c) overlapped cell clusters and artifacts

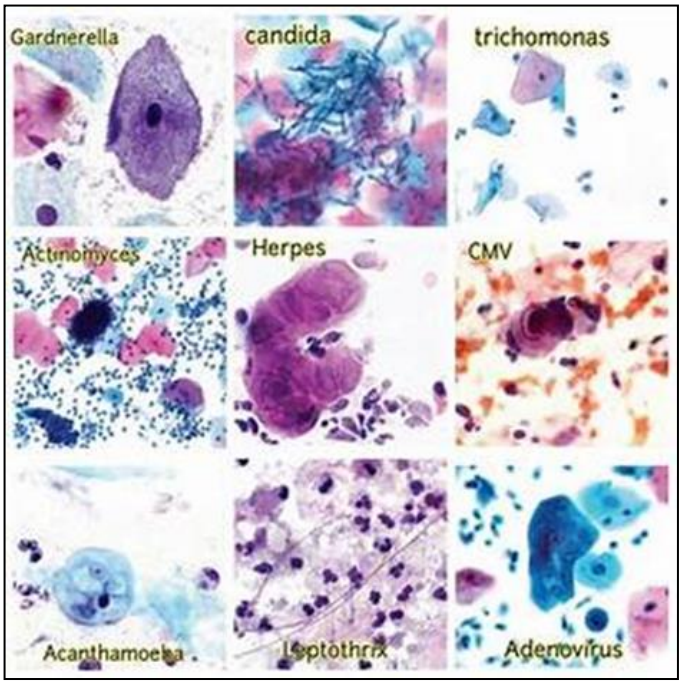

Fig 2

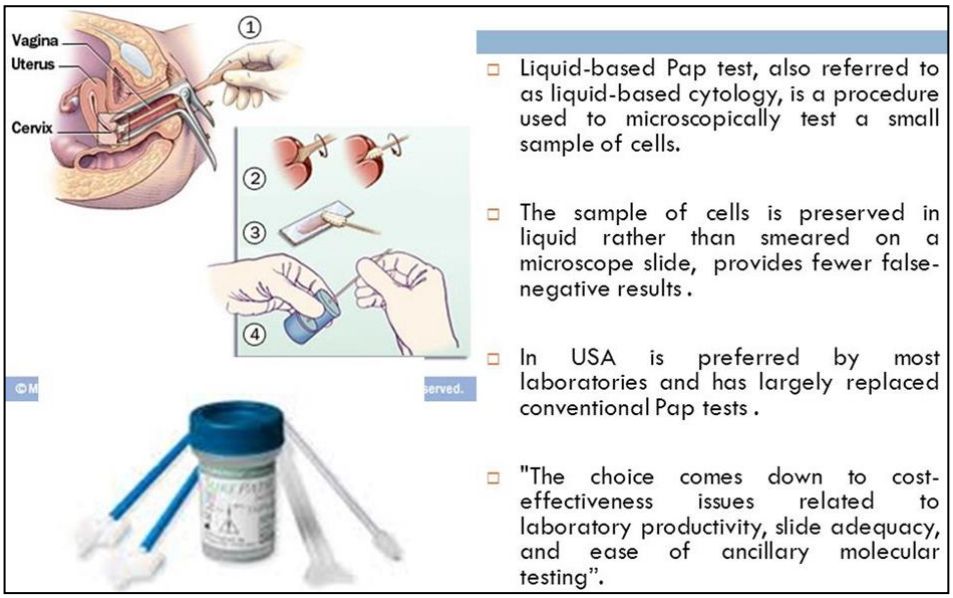

Fig 3: Liquid-based Pap test

Discussion

Cervical cancer is the second highest cause of cancer-related mortality in women, and the only sign of this cancer in the early stages is the loss of abnormal cells. Cervical cancer and breast cancer are the leading cause of mortality in developing countries like India [1]. This study included 6, 104 Pap smears, of which the most common epithelial abnormality was ASCUS and least common was adenocarcinoma. In studies conducted in rural India, Misra *et al.* (4279 females) and Nene et al. (79,449 females) reported the highest and lowest rate of ECA in 18.8% and 0.92% of cases, respectively [5, 6]. The present study had ECA in 2.13% of cases which is approximated to 2.6% a study conducted by Lebani et al. (2.6%, 5032 females) and Satyanarayan et al. (2.6%, 7603 females), in 2014 [7, 8]. Low literacy rate and lack of medical facilities in rural area are one of the reasons for high rates of cervical cancer in rural Indian females. Camp-based studies done in Barshi by Nene et al. found 0.009% (25 cases of cervical cancer in 2846 screened females) of cases with cervical cancer [9]. An another study by Karunakaran et al. found 0.6% of women with HSIL [10]. The present study had 0.209% HSIL which was lower and 0.31% cervical cancer which was higher than that reported by Nene et al. and Karunakaran *et al.*, respectively. Patients usually attend to hospitals at later stages of disease which is responsible for higher rates of cancers in hospital-based studies than in camp-based studies. In these camp-based studies, the acceptance rate of young female to Pap smear was more than older females. This may be due to fear of diagnosis of a high-grade disease, lack of education, and awareness in older females. A decrease in age-adjusted rate (AAR) of cervical cancer in

India is shown by population-based studies. The recent data from NCRP (2009–2011) showed that cervical cancer has highest AAR of 24.3 in Aizawl district of Northeast India followed by Barshi and Bengaluru with AAR of 19.5 and 18.9, respectively. The lowest AAR of 5.6 for cervical cancer was noted in Dibrugarh district. In Delhi, the AAR was 15.4% which is high enough from the present study [11]. The present study is a medical college hospital-based study in an semiurban area, but the patients visiting the gynaecology OPD are from both urban and nearby and far rural areas. The most common ECA seen in the present study was ASCUS in 0.667% of cases. A study by Gupta et al. (4703 females) also showed almost similar incidence of ASCUS (0.52%), but they had LSIL as the most common ECA in 1.36% of cases instead of ASCUS. Other hospital-based studies show ECA ranging from 0.3% to 2.3% [12-21]. Most of the studies showed that LSIL is the most prevalent ECA, whereas studies by Sengul *et al.* and Nair *et al.* showed maximum cases of ASCUS among the various ECAs [18-20]. The comparison of the present study with other hospital-based studies is done in the tabulated manner [Table 2] [12-21]. The present study also had glandular cell abnormalities in 71 (0.46%) of cases which was not illustrated in other studies. Furthermore, ASC-H was underreported in other studies. This difference may be attributed to the difference in place of study, sample size, age, literacy, sexual activity, related infections, availability of screening program, as well as social and cultural differences [12-21].

Table 2: Comparison of ECA with other hospital-based studies and present study

Studies	Number of cases	ASCUS %	ASC-H %	LSIL %	HSIL %	SCC %	AGC %
Present	6,104	41(0.67)	09(0.16)	22(0.37)	12(0.21)	13(0.25)	27(0.47)
Kothari *et al.*	36,740	0.11	-	0.83	0.31	0.05	–
Gupta *et al.*	4703	0.52	-	1.36	0.91	0.28	–
Nair *et al.*	2028	0.15		1.58	0.49	0.2	–
Sachan *et al.*	1650	2.90		5.09	0.48	-	-
Sengual *et al.*	1032	1.18		0.39	0.1	0.02	
Nayir *et al.*	1032	1.7		0.5	0.1	-	-
Shaki *et al.*	1100	4.0		6.8	6.0	2.3	–
Mandakini *et al.*	995	4.12	0.1		0.1	0.7	

SCC: Squamous cell carcinoma, ECA: Epithelial cell abnormalities, ASCUS: Atypical squamous cell of undetermined significance, ASC-H: Atypical squamous cell cannot exclude HSIL, LSIL: Low-grade squamous intraepithelial cell lesion, HSIL: High-grade squamous intraepithelial cell lesion, AGC: Atypical glandular cell

A hospital-based data are essential to estimate the prevalence of cervical premalignant and malignant cases and to detect the efficacy of ongoing screening test. Awareness of cervical cancer, availability as well as benefits of routine Pap smear screening, can further decrease the prevalence of malignant cases [13, 14]. Furthermore, it provides the actual burden of cervical dysplasia faced by the tertiary care hospitals, which provides information about the improvements to be done in various health schemes related to cervical cancer and provides estimate of required resources. However, the limitation of the study was that these cases were not histopathologically correlated and thus, sensitivity and specificity could not be evaluated. The present study highlights the importance of Pap smear as a screening test in decreasing the mortality and morbidity of cervical cancer by detecting them in premalignant stage and preventing their further advancement to malignant stage by timely treatment.

Conclusion

Cervical cancer is the most common cancer for which a sensitive screening Pap test and screening guidelines are available. Routine Pap test when combined with human papilloma virus testing further increases the sensitivity to detect premalignant cervical lesions. Hospital-based and community-based data should be published so that effective screening and management strategies can be planned to decrease the burden of cervical cancer in India. This is one of the largest hospital-based study published in Indian English literature.

References

1. Available from: http: //www.cancerindia. org.in/globocan2018-india-factsheet. [Last accessed on 2019 Sep 26].
2. Patel MM, Pandya AN, Modi J. Cervical pap smear study and its utility in cancer screening, to specify the strategy for cervical cancer control. Natl J Community Med. 2011; 2:49-51.
3. Saslow S, Solomon D, Lawson HW, Killackey M, Kulasingam SL, Cain J *et al.* American cancer society, american society for colposcopy and cervical pathology, and American society for clinical pathology screening guidelines for the prevention and early detection of cervical cancer. J Low Genit Tract Dis. 2012; 16:175-204.
4. Solomon D, Davey D, Kurman R, Moriarty A, O'Connor D, Prey M *et al.* The 2001 Bethesda system: Terminology for reporting results of cervical cytology. JAMA. 2002; 287:2114-9.
5. Misra JS, Srivastava AN, Gupta HP. Impact of literacy status on the cervical cancer screening in rural women of India. Invest Gynecol Res Womens Health. 2017; 1:510.
6. Nene B, Jayant K, Arrossi S, Shastri S, Budukh A, Hingmire S, et al. Determinants of womens participation in cervical cancer screening trial, Maharashtra, India. Bull World Health Organ. 2007; 85:264-72.
7. Labani S, Asthana S, Sodhani P, Gupta S, Bhambhani S, Pooja B *et al.* CareHPV cervical cancer screening demonstration in a rural population of North India. Eur J Obstet Gynecol Reprod Biol. 2014; 176:75-9
8. Satyanarayana L, Asthana S, Bhambani S, Sodhani P, Gupta S. A comparative study of cervical cancer

screening methods in a rural community setting of North India. Indian J Cancer. 2014; 51:124-8.
9. Nene BM, Jayant K, Malvi SG, Dale PS, Deshpande R. Experience in screening for cervical cancer in rural areas of barsi tehsil (Maharashtra). Indian J Cancer. 1994; 31:34-40.
10. Karunakaran U, Thekkandathil N, Divakaran B, Joseph MM, Kannankai S, Kumaran JA. Cervical cancer screening program a camp based cross sectional study among rural women in North Kerala. Sci J Public Health. 2017; 5:215-23.
11. Sreedevi A, Javed R, Dinesh A. Epidemiology of cervical cancer with special focus on india. Int J Womens Health. 2015; 7:405-14.
12. Patel MM, Pandya AN, Modi J. Cervical Pap smear study and its utility in cancer screening, to specify the strategy for cervical cancer control. Natl J Community Med. 2011; 2:49-51.
13. Nayir T, Okyay RA, Nazlican E, Yesilyurt H, Akbaba M, Ilhan B, et al. Cervical cancer screening in an early diagnosis and screening center in Mersin, Turkey. Asian Pac J Cancer Prev. 2015; 16:6909-12.
14. Sachan PL, Singh M, Patel ML, Sachan R. A study on cervical cancer screening using pap smear test and clinical correlation. Asia Pac J Oncol Nurs. 2018; 5:337-41.
15. Hyacinth HI, Adekeye OA, Ibeh JN, Osoba T. Cervical cancer and pap smear awareness and utilization of pap smear test among federal civil servants in north central nigeria. PLoS One. 2012; 7:e46583.
16. Ideström M, Milsom I, Andersson-Ellström A. Knowledge and attitudes about the pap-smear screening program: A populationbased study of women aged 20-59 years. Acta Obstet Gynecol Scand. 2002; 81:962-7.
17. Gupta K, Malik NP, Sharma VK, Verma N, Gupta A. Prevalence of cervical dysplasia in Western Uttar Pradesh. J Cytol. 2013; 30:257–62.
18. Sengul D, Altinay S, Oksuz H, Demirturk H, Korkmazer E. Population-based cervical screening outcomes in turkey over a period of approximately nine and a half years with emphasis on results for women aged 30-34. Asian Pac J Cancer Prev. 2014; 15:2069-74.
19. Kothari S, Gohel A, Dayal A, Shah R, Patel S. Pap smear a tool for detection of cervical intraepithelial lesions in health check up schemes: A study of 36,740 cases. Int J Res Med. 2014; 3:12-5.
20. Nair GG, Shamsuddin F, Narayanan T, Balan P. Cytopathological pattern of cervical pap smears-a study among population of North Malabar in Kerala. Indian J Pathol Oncol. 2016; 3:552-7.
21. Shaki O, Chakrabarty BK, Nagaraja N. A study on cervical cancer screening in asymptomatic women using papanicolaou smear in a tertiary care hospital in an urban area of Mumbai, India. J Family Med Prim Care. 2018; 7:652-7.