Papanicolaou Smear screening in Aligarh: A Review of the Cases

Abiha Ahmad Khan, Syeda Aamena Naaz, Diwan I. Khan and M. Anas

Department. of Amraze Niswan Wa Atfal, Faculty of Unani Medicine AMU Aligarh. U. P. India.

Cervical cancer is the second most common cancer after breast cancer. The risk factors associated with this dreaded yet preventable cancer is age at sexual debut, parity, multiple sexual partners, use of contraceptives and smoking etc. Fortunately, the cervical cancer are preventable because of the early detection of precancerous lesions. This is made possible by the screening procedures routinely in practice such as Pap smear, visual inspection and HPV. Methodology: The study was conducted to evaluate cervical cytological abnormalities, through pap smear reported as inflammatory lesions, precancerous (CIN1/ CIN2/CIN3) and carcinoma in situ, in women who underwent pap smear screening at the hospital. Discussion and Conclusion: This was a prospective study of pap smears received in the cytopathology laboratory from January 2019 to July 2019. A total of 202 Papanicolaou smears were sent to the cytology laboratory during the 6month time period. There were 112 (55.4%) abnormal pap smears (epithelial cell abnormalities, infections and inflammatory smears). 14 (6.9%) smears were inadequate or unsatisfactory for evaluation. 89 (44%) cases had inflammatory changes whereas epithelial abnormality was seen in 23 (11%). These findings corroborate with the fact that Papanicolaou (Pap) test is an important screening tool and is a simple technique to detect precancerous cervical lesions.

Keywords: Cervical Cancer; Pap smear; Reproductive age; Screening tests.

Worldwide, cervical is the second cancer to breast cancer.[1,2] It has been observed that the determination of risk factors for cervical cancer is crucial to understand the disease process and the treatment modality. These factors include age at sexual debut, parity, multiple sexual partners, use of contraceptives and smoking. In India, approximately 122,844 women are diagnosed with cancer cervix and 67,477 die from the disease with the peak age of incidence being 55-59 years.[3]

Moreover, poor socioeconomic status, repeated sexually transmitted infections and child marriages are associated with cervical cancer.

For secondary prevention of cervical cancer lesions, screen and treat approach is to be implemented. The three most commonly and widely accepted screening modalities are cervical cytology, visual inspection with acetic acid/ lugol's Iodine, and Human Papilloma Virus testing.[4] The mainstay of screening is to prevent the progression of precancerous lesions into invasive form of cancer.

Therefore, the method of screening has to be widely acceptable, easy to ~~preform~~perform?, prompt diagnostic investigations, good specificity and sensitivity so that immediate appropriate

*Corresponding author E-mail: abihaahmad89@gmail.com

treatment can be initiated with good posttreatment follow-up.[5, 6]

Out of all the available screening modalities a conventional Pap smear is commonly practiced method since its inception in the 1960s especially in countries with minimum resources. It is the safest, simplest and is inexpensive to diagnose benign and malignant lesions of cervix. In addition, implementation of the screening programs has shown reductions in cervical cancer incidence and mortality.[7, 8] However, a section of the female population is reluctant to undergo the test due to illiteracy, misconceptions, assumptions about the process and disbelief of being diagnosed with cervical cancer.[9,10,11,12]

This study evaluated the cytological abnormalities, in patients who underwent pap smear test routinely in the OPD of the hospital.

MATERIAL AND METHODS

It was a prospective study to evaluate the pap smears received in the pathology lab from January 2019 to July 2019 of patients attending the Outpatient department at the Ajmal Khan Tibbiya College and Hospital, catering to the subjects living in the densely located areas called Shah-Jamal, Bhujpura, Jeevangarh and Jamalpur in Aligarh. The symptoms and pap smears of all patients were analyzed, especially the ones who had undergone the test in this six-month period.

The patients were instructed to maintain abstinence, vigorous washing with antiseptics/ or use of douche before the pap test. Following Per-Speculum visualization of the cervix, two samples were collected. The first sample was obtained by using Ayre's wooden spatula, from the Squamo-columnar Junction. The material obtained was smeared on the frosted slide, and a thin film is prepared. The glass slide is then dipped for fixation in 95% ethyl alcohol. Another sample was collected from the endocervical canal using the cytobrush. The cytobrush was similarly rotated 360Úonce to collect the cells from the endocervix. The collected sample was then smeared on another slide without fixation.

Both the slides one with fixative and another air-dried were sent to the cytopathology lab. The diagnosis of the pap smears was done following the new Bethesda system(2001).

RESULTS

202 cervical pap smears were sent to the cytopathologist during the 6-month study period. Out of these 112 (55.4%) paps smears had epithelial cell abnormalities, infective and inflammatory smears, whereas 76 (37.6%) were normal. 14 (6.9%) smears were inadequate or unsatisfactory for evaluation and 89 (44%) cases showed reparative changes and epithelial abnormality was found in 23 (11%) cases.

8 patients had non-specific inflammation with no specific etiology. Candidiasis was the most common infection reported. 12 patients had trichomoniasis, who also clinically complained of a foul-smelling vaginal discharge and 18 cases of Gardenella vaginalis were reported. In 6 cases, HPV infection was seen without any feature of dysplasia. 8 cases had senile vaginitis.

Epithelial cell abnormalities were seen in 23cases, 7 cases as HSIL (High-grade Squamous Intraepithelial Lesion), 8 cases as LSIL (Low-grade Squamous Intraepithelial Lesion) and 3 cases as SCC (Squamous cell carcinoma) (table 2).

54 patients were in the age group of 21-30 years, 21 in the second decade, 3 in fourth decade and 6 cases in fifth decade and 5 in their 70's respectively (table 1).

The majority of the patients i.e., 78 (38.6%) were in the lower socioeconomic group followed by 54 (26%) in the upper middle class and 36 cases (17.8%) in the upper lower group was found.

DISCUSSION

Age-wise Distribution: 89 patients had inflammatory lesions in the cytological examination. The most common etiology was of candidiasis infection 37 in the age group of 21-30years. The second and third common etiologies were T. vaginalis and G. vaginalis infections at 18 and 12 respectively and were also seen in the 21-30 years age group. 5 patients were positive for HPV infection seen in the similar age group. 8 patients with atrophic vaginitis were seen in the post-menopausal age group which is an obvious finding. A study conducted on patients with leucorrhea in Jamnagar, Gujarat India had 16.6% cases of candidiasis infection in non-pregnant

Table 1. Distribution of inflammatory lesions according to age

Range of Age	Non specific	Trichomoniasis	Gardnella vaginalis	Candidiasis	Human Papilloma Virus	Senile vaginitis	Total (%)
21-30	5	8	8	28	5	-	54
31-40	1	2	8	9	1	-	21
41-50	-	2	1	-	-	-	3
51-60	2	-	1	-	-	3	6
61-70	-	-	-	-	-	5	5
Total	8	12	18	37	6	8	89

Table 2. Subject -wise distribution of the cytological abnormalities

S. No	Cytodiagnosis	No. of Patients
1	Unsatisfactory	14
2	Normal Smear	76
3	Inflammatory smear	89
4	Atypical Squamous Cells of Undetermined Significance	4
5	Atypical Squamous Cells cannot exclude-HSIL	4
6	Low grade Squamous Intraepithelial Lesion	7
7	High grade Squamous Intraepithelial Lesion	5
8	Squamous cell carcinoma	3
	Total	202

Table 3. Distribution of epithelial cell abnormalities according to age

Age Group	Atypical Squamous Cells of Undetermined Significance	Atypical Squamous Cells cannot exclude-HSIL	Low grade Squamous Intraepithelial Lesion	High grade Squamous Intraepithelial Lesion	Squamous cell carcinoma	Total
21-30	-	-	4	-	-	4
31-40	3	1	3	3		10
41-50	-	1	1	4	1	7
51-60	-	-	-	-	1	1
61-70	-	-	-	-	1	1
Total	3	2	8	7	3	23

Table 4. SES distribution of the population

S. no	Socio-economic class	No. of Patients	%tage
01	Upper (I)	13	6.4
02	Upper Middle (II)	54	26
03	Lower Middle (III)	21	10.3
04	Upper Lower (IV)	36	17.8
05	Lower (V)	78	38.6

females in the age group of 20-30 years and 22.5% in pregnant patients presenting with leucorrhea.[13]

Our study is consistent with the findings as 18.1% of patients presented with candidiasis infection. The increased number of inflammatory changes seen in the second and third decade is a common finding as during this period the female is sexually active and prone to develop infections. HPV infection as seen in 5 patients is a self-limiting infection and hence a repeat pap smear was advised in the patients.

Cytological diagnosis of Pap smears: The cytological abnormalities in the pap smear showed 89 patients with inflammatory smears. The study revealed 11.3% had epithelial abnormalities. Similar findings were seen in the study by Daniel et al wherein the prevalence of precancerous lesions was found to be 10.2% in women.[14] These findings could be attributed to the fact that women irrespective of their STI status are exposed to the same risk factors for the development of cervical cancers as is the case in our study. However, our study didn't evaluate ~~the~~ sexually transmitted infections in any of the patients. As observed in the present study, 8 patients had LSILs and 7 patients had HSIL. There is a strong association between LSILs and HPV infection and hence holds a diagnostic significance since these low grade lesions on the squamous cells of a host are a manifestation of virion production in HPV infections. Further, these lesions were more likely to persist and may progress, and hence viewed as high grade or high risk. Although the present study did not assess HPV infection, if done it would have been helpful in correlating the with decisions on the course of management.[15]

Evidence as per the genomic studies has shown that high grade lesions reveal abnormalities that are very similar as found in cervical cancer.[16] Therefore, the women who had High grade cervical lesions in the present study are of importance since the detection and eradication of HSILs is related to the prevention of cervical cancer.

Age wise distribution of epithelial cell abnormalities

As seen in this study women in the age group of 21-30years 4 had LSIL whereas in 30s and 50s there were 3 and 1 women respectively, HSIL was seen in the 4th and the 5th decade. Cases aged between 30-50years had higher odds to develop cervical precancerous lesions than compared to those aged 21-30 years. These findings are similar to the study conducted in Jimma, Ethiopia, that found older age (40-59) years to be at greater risk for invasive cervical cancer.[17]

SES distribution of the population: 38.6% of the population was in the lower socioeconomic group followed by 26% in the upper middle class and 17.8% in the upper lower group was found. This showed that majority of the study population belonged to the densely populated areas. In these circumstances the women's tendencies and abilities to prioritize their health is gets compromised immensely. In addition, regular checkups and visits to health care institutions by women are not a routine in developing countries. ~~To i~~Identify women in the lower SES and targeting them to evaluate for epithelial cell abnormalities, has been done in a number of studies. However, in this study we didn't correlate the socioeconomic status to the abnormal pap smear findings.

CONCLUSION

The Papanicolaou (Pap) test is widely known as a screening tool and as a simple method to detect cervical lesions in the initial precancerous stage. We are aware of the fact that cervical cancer is one of the leading malignancies in Indian women. Community sensitization about the risk factors, and educating women through social health activists and workers along-with screening of women of reproductive age on a regular basis for cervical cancer should be encouraged for its prevention and management. Its incidence is greater among women of poor socioeconomic status and lack of knowledge, as seen in this study. Further, the screening levels are low in the general population. In order to increase this, it is necessary to carry out specific health education sessions for women as well as their partners to facilitate care seeking.

Conflict of Interest

There was no conflict of interest among the authors.

Funding sources

REFERENCES

1. Mutyaba T, Mirembe F, Sandin S, Weidrepass E (2009) Male partner involvement in reducing loss to follow up after cervical cancer screening in Uganda. Int J gynaecol Obstet 107: 103-106).

2. Okwi AL, Wadabwa J, Okoth A, Otheino E. Prevalence of Cancerous and Pre-malignant Lesions of Cervical Cancer and their Association with Risk Factors as seen among women in the Regions of Uganda. Journal of clinical and Laboratory Medicine. ISSN 2572-9578 vol 2.1).

3. ICO Information Centre on HPV and cancer. Human Papillomavirus and Related Diseases in India (Summary Report 2014-08-22); 2014.)

4. Garner EI. Cervical cancer: disparities in screening, treatment, and survival. Cancer Epidemiol Biomarkers Prev. 2003; 12(3):242s–247s.)

5. Denny L, Sankaranarayanan R. Secondary prevention of cervical cancer. Int J Gynaecol Obstet. 2006;94(Suppl 1):S65–S70.)

6. Sreedevi A, Javed R, Dinesh A. Epidemiology of cervical cancer with special focus on India. International Journal of Women's Health 2015: 7)

7. Laara *et al.*, 1987; IARC Working Group, 1986; Hakama and Louivuori, 1988).

8. Denny L. Cervical cancer: prevention and treatment. Discov Med. 2012; 14:125–131)

9. Shakibazadeh E, Ahmadnia E, Akbari F, Negarandeh R. Barriers and Motivating Factors Related to Cervical Cancer Screening. Hayat. 2009; 14:83-9.

10. Kýssal A, Beser A. Perceptions of Barriers and Facilitators of Cervical Cancer Early Detection Behaviors among Elderly Women. International Journal of Caring Sciences. 2014; 7:157-168.

11. Byrd TL, Chavez R, Wilson KM. Barriers and facilitators cervical cancer screening among Hispanic women. Ethn Dis. 2007; 17:129-34.)

12. Akbari F, Shakibazadeh E, Pourreza A, Tavafian SS. Barriers and Facilitating Factors for Cervical Cancer Screening: A Qualitative Study from Iran. Iran J Cancer Prev. 2010; 13:178-84)

13. Incidence of Vaginal Candidiasis in Leucorrhoea in Women Attending in OPD of Gynecology and Obstetrics, Department, Gurugobind Singh Hospital, Jamnagar, Gujarat, India

14. Daniel, G. O., Musa, J., Akindigh, T. M., Shinku, F., Shuaibu, S. I., Kwaghe, B., … Sagay, A. (2020). Prevalence and predictors of precancerous cervical lesions among HIV positive women in Jos, north central Nigeria. International Journal of Gynecology & Obstetrics. doi:10.1002/ijgo.13312

15. Voltaggio L, Cimino Mathews A, Bishop JA, et al. Current concepts in the diagnosis and pathobiology of intraepithelial neoplasia: A review by organ system. CA Can J Clin. 2016; 66:408–436.

16. Massad LS, Einstein MH, Huh WK, et al. 2012 updated consensus guidelines for the management of abnormal cervical cancer screening tests and cancer precursors. J low Genit Tract Dis. 2013;17: S1–S27.

17. Bezabih M, Tessema F, Sengi H, Deribew A. Risk Factors Associated with Invasive Cervical Carcinoma among Women Attending Jimma University Specialized Hospital, Southwest Ethiopia: A Case Control Study. Ethiopian journal of health sciences. 2015 Oct; 25(4):345–52. PMID: 26949299. Pubmed Central PMCID: PMC4762973. Epub 2016/03/08.