Original Research Article

A study of 100 cases of PAP's Smear examination in different age groups

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Abstract

Background: Cervical cancer is one of the most common malignancies among women in developing countries. In India, one in five women is diagnosed with cervical cancer. India has the greatest load of cervical cancer patients.**Aims and Objectives:** To study PAP's Smear examination findings and compare them with different age groups.**Materials and Methods:** Hundred women aged 20 years and above having a history of amenorrhoea were studied in the Department of Pathology between May 2018 to December 2019. Slides were prepared and stained using the modified Papanicolaou staining method. Smear was observed for epithelial cells, red blood cells, white blood cells, bacteria, trichomonas, monilial hyphae, mucus, and neoplasm. The cervix's histology and cytology were performed to observe epithelial lining, original stratified squamous epithelium, metaplastic squamous epithelium, and cervical stroma. Cervical intraepithelial neoplasia (CIN) was also observed.**Results:** Majority (80%) had gynecological complaints. Out of 100 cases, 33 cases were reported normal, 56 cases were reported inflammatory, while one case was reported as metaplastic. Three cases were reported as CIN-I, 1 as CIN-II, 3 as CIN-III, and 3 as positive for malignancy. The highest incidence of dysplasia was seen between the age group 31-40 years. Smear positive for dysplasia of all degrees were found in 3rd and 4thpara, positive smears for malignancy were found maximum in 4th para, and one positive case was seen in 2nd para.**Conclusion:** Incidence of dysplasia was highest in the young working-age group. The Pap smear test is the most effective cervical cancer screening test since it is moderately priced, simple to do, and widely available to patients.

Keywords: Cervical cancer, Papanicolaou test, Smear examination.

Introduction

Cervical cancer is responsible for around one million fatalities each year among the world's female population. Cervical cancer has slipped to second place among women's cancers, with breast cancer taking first place[1]. If detected and treated early, morbidity and mortality can be reduced by 70% and 80%, respectively[2].

Of all the available methods for diagnosing cervical malignancy, such as cytology, Schiller's iodine test, Toluidine blue test, Colposcopy, Colpo microscopy, Punch biopsy, fluorescent microscopy, cytology appears easy, economical, accurate, and non-invasive being acceptable to most of the patients. In our setting, cytology is the most valuable and practical method.The Papanicolaou test, often known as the Pap smear, cervical smear, or smear test, is a cervix screening tool for detecting potentially precancerous and cancerous processes. This test was created by Greek doctor Georgios Papanikolaou and is named after him[3]The present study of 100 cases was carried out for cervical smears to assess the commonest cervical pathology in different age groups, assess early precancerous changes in the cervix, and determine the incidence of cervical dysplasia and cancer at our hospital.

Materials and methods

The present study of 100 cases was carried out at GMERS Medical College and Hospital, Gandhinagar from May 2018 to December 2019. A short history, including age, chief complaint, history, etc. were noted. Females aged 20 years and above, with complaints such as bleeding per vaginum (p/V), leucorrhoea, itching vulva, sterility, etc., and those without any complaints were selected for the study. Females having a history of amenorrhoea were also included in the study.Patients having history of recent vaginal operations, use of vaginal douches or chemical contraceptives or vaginal antibiotics, during or soon after menstruation or after dilatation and curettage were excluded.First, glass slides were marked with the patient's identity to prevent a mix-up with each other. The patient was asked to evacuate the bladder before per speculum examination in the lithotomy position. The longer end of Ayre's spatula was placed through the external os, high into the cervical canal. The spatula was then rotated to 360 degrees to thoroughly scrape the squamocolumnar junction and obtain an excellent endo-cervical component. The material was spread onto a clean glass slide in an anti-clockwise direction and immediately immersing the slide into a Coplin jar containing fixative. At least 15 minutes were required for adequate fixation. Then slides were allowed to dry and subsequently stained using the modified Papanicolaou staining method. Smear was observed for the presence of epithelial cells (appear dark blue), red blood cells (appear bright red), white blood cells (appear pale blue with dark blue-black nuclei), bacteria (stained grey), trichomonas (appear faint greyish blue), monilial hyphae (appear pink while spores stain brilliant red), mucus (pale blue or pinkish) and neoplasm. The cervix's cytology was performed to observe epithelial lining, original stratified squamous epithelium, metaplastic squamous epithelium, and cervical stroma. Cervical intraepithelial neoplasia (CIN) was also observed. CIN was classified as CIN-I (mild dysplasia), CIN-II (moderate dysplasia), and CIN-III (severe dysplasia and carcinoma in situ). Assessment of invasive carcinoma cervix was also done. All the data analysis was performed using IBM SPSS ver. 20 software. Data were expressed as numbers and percentages. Frequency distribution and cross-tabulation were performed to prepare the tables.

Results

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Out of 100 women screened, 80% were found to have gynecological complaints, whereas 20% were with non- gynecological complaints.

Table 1: The cytological pattern seen in different age groups

Age groups (year)	Total	Normal	Inflammation	Metaplasia	Dysplasia			Invasive carcinoma
					CIN-I	CIN-II	CIN-III	
20-30	30	8	20	1	0	0	0	1
31-40	30	10	16	0	1	1	2	0
41-50	20	9	8	0	1	0	0	2
>50	20	6	12	0	1	0	1	0
Total	100	33	56	1	3	1	3	3

Out of 100 cases, 33 cases were reported normal, 56 cases were reported inflammatory, while one case was reported as metaplastic. Three cases were reported as CIN-I, 1 as CIL-II, 3 as CIN-III, and 3 as positive for malignancy. The highest incidence of dysplasia was seen between the age group 31-40 years. The youngest patients with malignancy were 22 years, while that of the oldest patients was 45 years.

The highest normal smears were found in para 2nd and 3rd, while highest inflammatory smears were found in 2nd, 3rd, and unipara. One metaplastic smear was found in the 3rd para.While smear-positive for dysplasia of all degrees were found in 3rd and 4thpara, positive smears for malignancy were found maximum in 4th para, and one positive case was seen in 2nd para.

Table 2: Showing Smear classification

Smears		No of cases	Percentage
Normal		33	33
Inflammatory	Bacterial	2	2
	Fungal	1	1
	Parasitic	3	3
	Nonspecific	50	50
Metaplastic		1	1
CIN-I		3	3
CIN-II		1	1
CIN-III		3	3
Invasive carcinoma		3	3
Total		100	100

Discussion

Cervical screening aids in the early discovery of precancerous lesions, which can then be treated to prevent them from progressing to cancer. Patients with abnormal pap smears who are identified and serially screened have a higher chance of survival[3].Out of 100 cases, 33 cases were reported normal, 56 patients were reported inflammatory, while one case was reported as metaplastic. In a study conducted by Sunita et al[4], 403 (71.96%) reports were inflammatory, and 3(0.5%) reports squamous cell carcinoma. Similar to the present study in the study conducted by Mandakini et al[5], inflammatory Pap smear reports were 572(57.5%), and squamous cell carcinoma were 7(0.7%). In the present study, out of 100 cases, 3 cases were reported as CIN-I, 1 as CIL-II, 3 as CIN-III, and 3 as positive for malignancy. In line with this, Poste et al. studied 1260 cervical specimens, of which 13% were malignant. The total number of cervical intraepithelial lesions were 51 cases (4.04%), of which 15 were CIN I (29.4%), 25 were CIN II (49.01%), and 11 were CIN III (25.49%)[6].The highest incidence of dysplasia was seen between the age group 31-40 years. The youngest patient with malignancy was of 22 years, while that of the oldest patient was of 45 years. In a study conducted by Sunita et al[4], a maximum number of women were between 31 to 40 years old (32.68%). In a study conducted by Mandakini et al., between 15 to 30 years, a maximum number of women were studied. A study conducted by Khalaf et al. on the association of early marriage and socio-medical characteristics with cervical Pap smear results showed that abnormal Pap smears were detected in women who married at ≤18. Marriage at an early age was significantly connected with abnormal Pap smear results[7]In the present study, the highest normal smears were found in para 2nd and 3rd while highest inflammatory smears were found in 2nd, 3rd, and unipara. One metaplastic smear was found in the 3rdpara.While smear-positive for dysplasia of all degrees were found in 3rd and 4thpara, positive smears for malignancy were found maximum in 4th para, and one positive case was seen in 2nd para. In a similar study by Das et al., 471 cases were studied retrospectively; they reported similar findings. [8] Another study by Prakash et al. also reported that inflammatory smear was more prevalent in 2nd, 3rd, and unipara[9]

The cross-sectional nature and small sample size are the main limitations. There is a need for a large randomized clinical trial to strengthen the present study findings.

Conclusion

Cervical carcinoma is the most frequent cancer among women in underdeveloped nations, and it is the primary cause of illness and mortality. The Pap smear test is the most effective cervical cancer screening test since it is moderately priced, simple to do, and widely available. Women in rural areas with low socioeconomic status should be screened in large numbers with PAP smears. Although thorough PAP tests are advised for cervical cancer screening, the preventative effect of PAP smears depends on regular serial screening.

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