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Clinico-pathological profile of patients undergoing cervical cancer screening using Pap smear at a tertiary hospital in Odisha

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Abstract-

Cervical cancer is the most common preventable cause of cancer in women across the world. This study was conducted with an objective to estimate the prevalence of various cervical lesions among women of northern Odisha and evaluate the clinical and pathological profile of those with premalignant and malignant lesions as well as nonneoplastic lesions of the cervix.

This observational study was conducted at a tertiary hospital in Odisha between July 2020 to April 2021. An opportunistic screening program at the hospital was used to recruit participants from the out-patient of Department of Obstetrics and Gynaecology. We included women aged 21 years or older who had symptoms such as vaginal discharge, post-coital bleeding, intermenstrual bleeding, post-menopausal bleeding, multiple sexual partners, unhealthy looking cervix or a lesion that bleeds on touch. Cytology laboratory reported the examination results according to the Bethesda III Classification System (2001).

The study included a total of 220 women, among whom Pap smear was possible in 187 candidates White vaginal discharge was the most common symptom found in 36.96% participants and abdominal pain was seen in 25.63%. NILM was the most common abnormality detected followed by ASCUS. Most women, n=78 (41.71%) with NILM belonged to the 31- 40 years of age group, followed by 54 (28.87%) women who belonged to the 21–30 years of age group. Most women with NILM, n=58(31.01%), belonged to the P1+0 Parity, followed by 42(28.87%) women who belonged to the P4+0 parity. Very few cases are from the >P5+0, 7(3.74%) out of 187 NILM. ASCUS was found mostly in women 4(36.36%) P1+0 Parity followed by the 3(27.27%) P2+0 parity.

Abnormal cytological findings on Pap smears are frequent in occurrence and the profile of patients suggest Pap smear screening to be a good public health intervention to reduce the preventable deaths in these women.

Introduction-

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Cancer of the cervix is one of the most common cancers among women affecting over half a million women across the world yearly. It is also a preventable cause of death among relatively younger women from Low and middle-Income countries such as India. (1) Cervical cancer cases (99%) are almost exclusively associated with infection of human papillomaviruses (HPV). Although most HPV infections resolve spontaneously without symptoms, persistence can lead to cervical cancer in women. (1)According to the World Cancer statistics, over 80% of all cervical cancer cases are found in developing and low-resource countries. This is probably because of a lack of awareness and difficulty in running cytology-based screening programs. (2)Cervical cancer has a high success rate of treatment, if detected early. Early detection and appropriate treatment are possible if robust screening programs are implemented. (3) One such mass screening approaches pioneered in India is the low-cost pap smear method. (4)

Epithelial changes in the cervix can be detected early in the disease and are ideal candidates targeted for screening. The Papanicolaou (Pap) smear was introduced in 1941, became the standard screening test for cervical cancer and premalignant lesions, and is being used globally.(5,6) Pap smear screening has a sensitivity of 50%–75% and specificity of 98%–99%.(7)With such a comprehensive approach to prevent, screen and treat, cancer of the cervix can be soon eliminated as a public health challenge.

Even though such programs are fairly well documented, the regional variations in the findings among these patients are stark and need further localized studies. Therefore, this study was conducted with an objective to estimate the prevalence of various cervical lesions among women of northern Odisha and evaluate the clinical and pathological profile of those with premalignant and malignant lesions as well as nonneoplastic lesions of the cervix.

Methodology-

This was an observational study conducted at Fakir Mohan Medical College and Hospital, Balasore, Odisha between July 2020 to April 2021. An opportunistic screening program at the hospital was used to recruit participants from the out-patient of Department of Obstetrics and Gynaecology. Serial non random sampling was done among these patients. We included women aged 21 years or older who had symptoms such as vaginal discharge, post-coital bleeding, intermenstrual bleeding, post-menopausal bleeding, multiple sexual partners, unhealthy looking cervix or a lesion that bleeds on touch. We excluded women not willing to participate in the study and known cases of cancer cervix or those who had undergone treatment for cancer cervix.

Clinical and sociodemographic data were collected form the participants using a standard data collection format. The Pap tests were performed using a brush or spatula to gently scrape the cellular material from the squamocolumnar junction of the cervix and then smeared onto glass slides of about 25 mm × 50 mm. These glass slides were then immediately put into a Coplin jar containing 100% methanol (fixative) and then sent to the pathology department where these pap smears were stained by the Pap staining method. Cytology laboratory reported the examination results according to the Bethesda III Classification System (2001) as follows:

a. Adequacy of sample
   - Satisfactory
   - Unsatisfactory

b. Squamous cell abnormalities
   - Atypical squamous cells (ASCs)
   - ASC of undetermined significance (ASC-US)
   - ASC that cannot rule out high-grade lesion (ASC-H)
   - Low-grade squamous intraepithelial lesion (LSIL)
   - High-grade squamous intraepithelial lesion (HSIL)
   - Squamous cell carcinoma (SCC)

c. Glandular cell abnormalities

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- Atypical glandular cells, specify site of origin, if possible
- Atypical glandular cells, favor neoplasia
- Adenocarcinoma in situ
- Adenocarcinoma

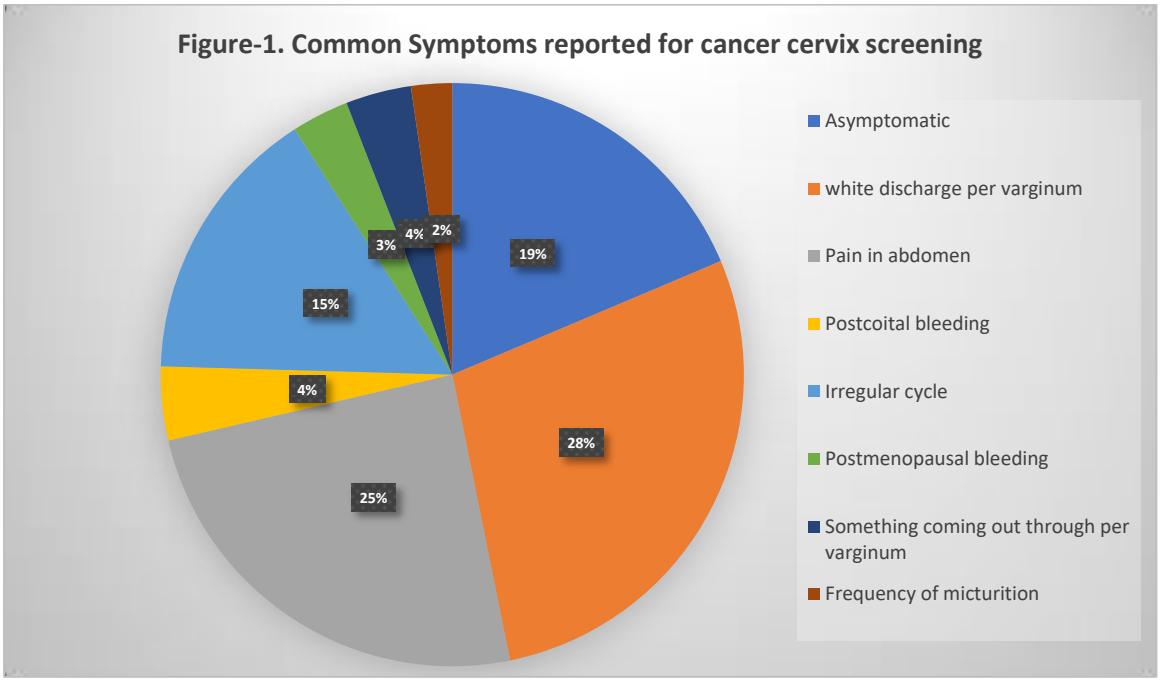
d. Other cancers (such as lymphoma, metastasis, and sarcoma)

All the women with abnormal results detected in Pap smear were advised for follow-up and treatment as per the standard guidelines by the WHO. Those with LSIL and HSIL were counselled and advised to undergo colposcopic examination and biopsy for histopathological examination.

Descriptive statistical analysis was done to express frequencies and proportions for each clinical and pathological type of lesion found.

Results-

The study included a total of 220 women meeting the inclusion criteria, among whom Pap smear was possible in 187 candidates. Among the 220 included women, 154(70%) were Hindus while 58 (26.26%) were Muslims and only 8 (3.64%) were Christians. Similarly, most women (n=146;66.36%) belonged to rural communities as compared to urban residents. The mean age of the participants was 34.6 years (SD=9.4 years). White vaginal discharge was the most common symptom found in 36.96% participants and abdominal pain was seen in 25.63%. The details of the other symptoms are presented in figure-1 below.



Among the study participants, NILM was the most common abnormality detected followed by ASCUS. Most women, n=78 (41.71%) with NILM belonged to the 31- 40 years of age group, followed by 54 (28.87%) women who belonged to the 21–30 years of age group. Very few cases were from the age group >71years. Meanwhile ASCUS was found mostly in women aged 21–30 years followed by the 31-40 years of age group. Most women with NILM, n=58(31.01%), belonged to the P1+0 Parity, followed by 42(28.87%) women who belonged to the P4+0 parity. Very few cases are from the >P5+0, 7(3.74%) out of 187 NILM. ASCUS was found mostly in women 4(36.36%) P1+0 Parity followed by the 3(27.27%) P2+0 parity. The details of the cervical abnormalities are depicted in table-1 below.

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Table-1. Age and parity of the study participants and the different cervical abnormalities							
Age and Parity of the participants		Examination results based on Bethesda classification system (n)					
		NILM	ASCUS	ASC-H	LSIL	HSIL	SCC
Age Group (Years)	21-30	54	5	1	1	0	0
	31-40	78	3	1	2	1	0
	41-50	32	1	2	3	2	1
	51-60	14	1	2	2	1	0
	61-70	7	0	1	1	1	0
	>71	2	1	0	0	0	0
Parity	P1+0	58	4	0	0	0	0
	P2+0	36	3	1	1	1	0
	P3+0	29	1	2	2	1	0
	P4+0	42	2	3	4	2	1
	P5+0	15	1	1	1	1	0
	>P5+0	7	0	0	1	0	0
Total		187	11	7	9	5	1

Discussion-

This was a cross-sectional study was conducted among 220 women in the state of Odisha with an objective to estimate the prevalence of various cervical lesions among women and evaluate the clinical and pathological profile of those with premalignant and malignant lesions. While there have been previously published reports from elsewhere in India, the reginal variations are too large and therefore this study adds to the body of evidence on the local distribution and features of cervical pathologies.

The World Health Organization and the US Preventive services Task Force recommends screening for cervical cancer every 3 years with cervical cytology alone in women aged between 21 to 29 years. For women aged 30 to 65 years, WHO recommends screening every 3 years with cervical cytology alone, every 5 years with high-risk human papillomavirus (hrHPV) testing alone, or every 5 years with hrHPV testing in combination with cytology (co-testing). (1,8) In India, similar programs have been piloted before and there is a strong body of evidence suggesting the benefits of a cost-effective Pap smear method in India. (4,7)

In our study, among all age groups, 40-60 years showed maximum numbers of abnormal cytological findings. Cervical pathologies increase with age and this is a major non-modifiable risk factor in most cancers. This finding is similar to the one reported by Gupta et. al. who also found middle aged women from northern India to be at a higher risk of cancers as well as other cervical pathologies. (9) Age needs to be considered carefully during targeting screening programs and the health education content for consumption by the community.

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We found that the most common cervical finding on examination was NILM. This is on expected lines and majority of the literature corroborates this. ASCUS was found mostly in women in 21-30 years age group followed by the age group of 31-40 years. LSIL was found mostly common in the age group of 41-50 years (33.3%). These findings are similar to the observations made by Sachan, et. al. in their study. (10) The most common epithelial abnormality found in our study was ASCUS (5%). This is in contrast to the finding of Gupta et.al. who reported the most common epithelial abnormality was LSIL (12.4%). (9) Overall NILM was found to be prevalent in 85% patients and atypical cells were found in only 15 % of the cases. However, this I slower in comparison to other studies who have found a higher burden of such nonmalignant lesions ranging to about 49%. (7,10) In our study, out of 220 cases, only 4% were having LSIL whereas in the study conducted by Verma, et. al., LSIL was found in 5.5% of the total cases. (11) Similarly, HSIL was found in only 2.5% of total patients in our study which is in contrast to findings by other authors. (12)

Cervical Cancer is a preventable disease and it can be diagnosed early by a Pap smear. Specific tailored screening programs are required to provide most respite from morbidity and mortality associate with cervical neoplasms. There is a lack of awareness regarding screening for Cervical Cancer among the population. Abnormal cytological findings on Pap smears are frequent in occurrence and the profile of patients suggest Pap smear screening to be a good public health intervention to reduce the preventable deaths in these women.

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