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Original Research Article

Comparative study of causative organism in erosive cervicitis, cervical intra epithelial neoplasia and carcinoma cervix using Pap smear

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ABSTRACT

Background: Cervical cancer is the third largest cause of cancer mortality in India after cancers of the mouth and oropharynx, and oesophagus, accounting for nearly 10% of all cancer related deaths in the country.
Methods: The present study carried out 300 patients in Gajra Raja Medical College in the Department of Obstetrics and Gynaecology, OPD and indoor admitted patients from July 2016 to December. 2016. The selected patients were examined with care to note any cervical lesion, appearance of cervix, nature of any cervical/ vaginal discharge. Then a cervical scrape was taken with an Ayre's spatula and slide stained and then examined.
Results: The maximum cases of HPV were seen in CIN, LSIL and HSIL. Maximum incidence of all cases was seen in the age group of 30-50 yrs. The women married before 18 years had the highest incidence of CIN and HPV infection. Majority of the cases of cervicitis were co-infected with H-Vaginalis and Trichomonas. Most women opted for a sterilization procedure rather than any other method of contraception. Use of no contraception puts these women at a high risk of acquiring HPV infection from infected partners.
Conclusions: Occurrence of HPV infection declines with increasing grades. Most of the patients with HPV infection had presented with non-specific symptoms of discharge P/V or lower abdominal pain.

Keywords: Cervical cancer, CIN, HPV infection

INTRODUCTION

Cervical cancer is the third largest cause of cancer mortality in India after cancers of the mouth and oropharynx, and oesophagus, accounting for nearly 10% of all cancer related deaths in the country. Among women, it is the leading cause of cancer mortality, accounting for 26% of all cancer deaths. According to International agency for research in cancer estimates, mortality from cervical cancer is expected to witness a 79% increase from 74,118 deaths in 2002 to 132,745 deaths by 2025.[1]

It is estimated that in India, 1,26,000 new cases occur each year.[2] The incidence of cervical cancer has decreased by more than 50% in the past 30+ years, due to the increasing use of cervical cancer screening with cervical cytology.[3] The mainstay of cervical cancer screening has been the Papanicolaou test, also known as the Pap test or the Pap smear. It was developed by Dr. George Papanicolaou in the 1940s who discovered that precancerous and cancerous cells could be identified in cytologic samples from vaginal aspirates.[4] Unlike most other malignancies, cancer of cervix is readily preventable when effective programmes are conducted to detect and treat its precursor lesions.[2]

This disease has a natural history where the malignant epithelial transformation evolves over many years from carcinoma–in-situ to frankly invasive lesions. The

anatomical accessibility of the cervix to physical examination the disease can be detected at an early stage, when definite cure is readily achieved by surgery or radiotherapy.

METHODS

The present study carried out 300 patients in Gajra Raja Medical College in the Department of Obstetrics and Gynaecology, OPD and indoor admitted patients from July 2016 to December 2016.

These patients were analyzed through a thorough history taking with special emphasis on risk factors for HPV infection and thus carcinoma cervix. Then the selected patients were examined with care to note any cervical lesion, appearance of cervix, nature of any cervical/ vaginal discharge.

Then a cervical scrape was taken with an Ayre's spatula and slide stained and then examined. Method of smear preparation and slide staining. Two techniques have been used - aspiration from post fornix, originally introduced by Papanicolaou and Cervical scrape method.

RESULTS

Of the 300 patients studied, 158 of the patients (52.5%) studied, had some degree of dysplasia, delineating a big group of patients with CIN, who if timely treated, could be prevented from developing cervical malignancy. 126 (42%) had erosive cervicitis and 18 (5.5%) had cervical carcinoma (Table 1). Nearly 50 percent of the patients had the evidence of HPV infection on Pap smear, showing the high prevalence of HPV infection in women attending the gynecology OPD (Table 2).

Table 1: Diagnosis wise distribution of cases.

Diagnosis	Cases
Total cases	300
Cervicitis	126 (42%)
CIN	158 (52.5%)
LSIL	101 (64.76%)
HSIL	55 (44.76%)
Carcinoma cervix	7 (5.5%)

Table 2: Cases with HPV changes on cytology.

Total cases	Cases with HPV changes
300	138 (46%)

The maximum cases of HPV were seen in CIN. As can be seen from the table, the occurrence of HPV infection declines with increasing grades (Table 3). Maximum incidence of all cases was seen in the age group of 30-50 years (Table 4). The age distribution pattern shows that women with at least three or more children are the most sufferers from both CIN and Carcinoma cervix (Table 5).

Table 3: Case wise HPV changes on cytology.

Diagnosis	No. Of cases with changes of HPV
Overall	138/300 (46%)
Cervicitis	51/126 (40.47%)
CIN	68/158 (42.85%)
LSIL	48/101 (47.05%)
HSIL-Mod Dyspl	19/36 (54.16%)
HSIL-Sev Dyspl	0/19 (0%)
Carcinoma	0/17 (0%)

Table 4: Age wise distribution of HPV positive cases by cytology.

Cases	10 -19	20-29	30-39	40-49	50-59	> 60 years
Overall	06 (4.34%)	31 (22.82%)	46 (32.6%)	42 (30.43%)	09 (6.52%)	04 (3.26%)
Cervicitis	05	17	19	07	02	02
CIN	01	10	21	28	08	03
LSIL	01	08	20	21	03	01
HSIL-Mod Dyspl	-	03	02	06	06	01
HSIL-Severe Dyspl	-	-	-	-	-	-
Carcinoma	-	-	-	-	-	-

Table 5: Parity wise distribution of cases.

Cases	P0	P 1	P 2	P 3	P 4	P 5	P6	P7
Overall	18 (6%)	27 (9%)	56 (18.5%)	78 (26%)	55 (18.5%)	40 (13.5%)	18 (6%)	08 (2.5%)
Cervicitis	11	17	20	29	17	08	02	03
CIN	04	09	25	35	27	24	10	03
LSIL	02	03	16	33	15	15	06	01
HSIL-Mod Dyspl	03	06	06	07	07	05	03	01
HSIL-Severe Dyspl	-	-	01	04	05	03	03	-
Carcinoma	-	-	-	04	04	03	02	01

Overall, most women were married at an early age. The women married before 18 years form a huge group, and these women had the highest incidence of CIN and HPV infection (Table 6).

Majority of the cases of cervicitis were co-infected with H-Vaginalis and Trichomonas (Table 7). As seen from above table, most women opted for a sterilization procedure rather than any other method of contraception. Use of no contraception puts these women at a high risk of acquiring HPV infection from infected partners (Table 8).

Table 6: Age at marriage /first intercourse of HPV positive cases.

Cases	<12 years	13-18 years	19-25 years	>25 years
Overall	48 (34.74%)	60 (43.48%)	30 (21.73%)	0
Cervicitis	13	21	16	0
CIN	29	31	11	0
LSIL	22	24	08	0
HSIL	06	07	04	0

Table 7: Co-infection in cases with HPV infection.

Cases	Candida	*H. vaginalis*	Trichomonas	Other	Total
Overall	12 (8.7%)	39 (28.26%)	35 (25%)	-	86 (61.97%)
Cervicitis	06	18	17	-	45 (32.8%)
CIN	04	18	15	-	40 (29.34%)
LSIL	02	10	05	1-Chalmydia	19 (14.13%)
HSIL	03	06	09	-	21 (15.21%)
Carcinoma	-	-	-	-	-

Table 8: Contraceptive practice in relation to HPV infection.

Cases	Oral contraceptives	Barrier methods	Sterilization procedures	None
Overall	07(5.43%)	06(4.34%)	70(51.08%)	33(23.91%)
Cervicitis	02	01	16	15
CIN	04	04	45	14
LSIL	03	04	30	08
HSIL	01	-	14	05

DISCUSSION

The present study is entitled Comparative study of causative organism in cervicitis, cervical intra epithelial neoplasia, and carcinoma cervix, using Pap smear. 158 patients had dysplasia of various grades and 11 patients had carcinoma cervix. The high incidence of dysplasia among these patients was because only high-risk patients had been taken into this study. Among these 158 patients, 101 (64.68%) had LSIL and 55 patients (35.32%) had HSIL. Mohini Garud et al in their study they found 63.2% had mild dysplasia, 23.3% had moderate dysplasia and 13.8% severe dysplasia.[5]

The average age of incidence of any of the cervical lesions was maximum in the age group 30- 50 years. This outcome corresponds to age incidence of dysplasia found in similar studies done previously correlated with Mohini Garud et al (20-40 years).[5] 8 out of 17 cases of carcinoma were seen in women between 30-50 years and above. This finding is consistent with current world trends in age- specific cancer incidence as seen from the study done by Parkin DM et al in 2002.[6] 72.38 % of the cases of dysplasia were found in women with parity 3 or more. This is especially true in cases of HSIL. With increasing parity, more women had higher-grade lesions. All the 17 cases of carcinoma cervix were found in women with three or more children (100%). This finding is similar as that of Jito Mohanty et al in their study on invasive carcinoma, where they found a 93% assosciation with multiparity.[7]

HPV infection shows a similar relationship to high parity. 82.6% patients with HPV infection were of parity 3 or greater. This finding is consistent with the risk that multiple births imply recurrent damage and infection of the cervix. Other study showed that cervical cancer risk rose steadily as a woman's number of birds increased.[8]

In present study, 74% of these women with HPV either had undergone a permanent procedure or used no contraceptive method. In present study percentage of OCP and HPV were 5.43%. The study done in this regard by Paba B et al showed no association between OCP usage and occurrence or progress of HPV infection and SIL of cervix.[9] Of the 92 women with HPV infection, 35% had been married before the age of 12 years while 43% were married before the age of 18 years. All the 17

patients with carcinoma had been married before the age of 12 years. In other study done by Africa SS, cervical cancer closely liked with the age at first birth.[8] Most commonly seen was *H. vaginalis* (28.3%) followed by Trichomonas infection (23%) and Candida (8%). Co-infection has been found to increase the occurrence of dysplasia. Study done by Kone ES et al, they found candida seen in 57.78% and trichomas 50% which is not correlated with present study.[10] The analysis of symptoms also showed that most of these women had been suffering from these symptoms for quite a long period. Most of them, being homemakers, were given least attention by the family members. Lack of knowledge coupled with lack of facility and money forced many of these women to suffer long from the symptoms until they were sick enough for urgent medical attention. Of the eleven cases of carcinoma cervix, only three were in stage 2. Rest of them was sadly, inoperable.

CONCLUSION

Most women at the OPD have one or the other risk factors for cervical disease. Majority of these affected patients with erosive cervicitis and dysplsia with HPV had mild or moderate dysplsia. Occurrence of HPV infection declines with increasing grades. Most of the patients with HPV infection had presented with non-specific symptoms of discharge P/V or lower abdominal pain. All these women should be advised follow-up and its importance. All women who have cytological abnormalities or high-risk factors need to undergo a HPV DNA typing study.

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