

Original research article

Observational Study of Various Types of Cervical Cancer and their Associated Risk Factors at a Government Tertiary Level Hospital

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Abstract

Introduction: Cancer cervix is a common disease in females being most common cancer in women in India and second most common in women all over the world. The incidence of carcinoma cervix is 530,000 and mortality is 275,000. The risk factors related to HPV infection include early age of coitus, multiple sexual partners and low socioeconomic status. **Bosch et al (1995)** reported that 93% of SCCs and 50% of Adenocarcinomas of cervix are associated with HPV infection. Of all the women infected with HPV, 5-8% progress to SILs (Squamous Intraepithelial Lesions); 3-5% to LSIL (Low grade Squamous Intraepithelial Lesions) and 1-3% to HSIL (High grade Squamous Intraepithelial Lesions). 10% of untreated LSILs and 30-40% of untreated HSILs progress to invasive carcinoma.

Aims: to study the type of cervical lesions and their associated risk factors.

Methodology: The present study was carried out on 163 patients attending OPD and IPD of Obstetrics & Gynecology in a government Medical College and Hospital. All patients presenting with complaints like irregular menses, menometrorrhagia, post-coital bleeding, leucorrhea, blood stained or offensive discharge, dyspareunia (symptoms), abnormal discharge, cervical growth, bleeding on touch, etc were included in the study.

Results: Most of the cases of SCC, 54(71.1%) and 3 cases of adenocarcinoma (75%) were in age group 40-60 year. Rest of the cases of SCC, 22(28.9%) were in younger and older age group. Conclusion: premalignant and malignant lesions of cervix are more commonly seen in older age groups, in women with high parity. Regular Pap screening programs and social education can help in reducing the incidence of cancer cervix.

Keywords: cervix, cancer, SCC, adenocarcinoma

Introduction

Cancer cervix is a common disease in females being most common cancer in women in India and second most common in women all over the world (JIMA, 2000). The incidence of carcinoma cervix is 530,000 and mortality is 275,000 (Arbyn et al, 2011). Out of these 79% of cases are seen in developing countries (Conesa et al, 2009). In India it is the most common malignancy in females. Infection with high risk HPV is the most important risk factor in cervical carcinoma (Koss, 5th edition; Berek & Novak, 14th edition). The risk factors related to HPV infection include early age of coitus, multiple sexual partners (Muller et al, 1975; Pratt et al, 1956; Heins et al, 1958) and low socioeconomic status (Gusberg and Singleton, 1991; Rao and Rao, 1990; Anderson et al, 1988). Bosch et al (1995) reported that 93% of SCCs and 50% of Adenocarcinomas of cervix are associated with HPV infection. Of all the women infected with HPV, 5-8% progress to SILs (Squamous Intraepithelial Lesions); 3-5% to LSIL (Low grade Squamous Intraepithelial Lesions) and 1-3% to HSIL (High grade Squamous Intraepithelial Lesions). 10% of untreated LSILs and 30-40% of untreated HSILs progress to invasive carcinoma (Koss, 5th edition). Pap screening helps in recognizing cervical lesions at an earlier stage. The changes of initial lesions produced by HPV (genital warts) are evident in Pap smears most conspicuously as 'Koilocytes' and whenever any feature indicative of HPV infection is found in a Pap smear, the patient should be followed up regularly after appropriate treatment of STD so that the progress of lesion can be recognized (Hellberg et al, 1987).

This study was carried out to study the type of cervical lesions and associated risk factors.

Methodology:

The present study was carried out on 163 patients attending OPD and IPD of Obstetrics & Gynecology in J.N. Medical College and Hospital; A.M.U. presenting with irregular menses, menometrorrhagia, post-coital bleeding, leucorrhea, blood stained or offensive discharge, dyspareunia (symptoms), abnormal discharge, cervical growth, bleeding on touch, bulky uterus, cervical induration, tenderness, fixity to fornices (P/V), bleeding ulcers, cervical growth (P/S), thickening and induration of uterocervical ligament (P/R) etc. The study was carried out for a period of 18 months (from 1 January 2010 to 30 June 2012). A detailed clinical history and examination was carried out along with routine investigations. Classification of the 163 cases of carcinoma cervix was done according to the Bethesda system (1988). For **Statistical analysis** Unpaired t-test and chi-square tests were applied using SSPS 20.0 version.

Results:

Maximum patients were in the age group of 40-60 years; 101/163 (62%) i.e. post-reproductive age followed by 46 patients (28.2%) in 20-39 year age group (reproductive age group). Very few patients were >60 year of age (9.8%). Most of the cases of SCC, 54(71.1%) and 3 cases of adenocarcinoma (75%) were in age group 40-60 year. Rest of the cases of SCC, 22(28.9%) were in younger and older age group.

All lesions showed a significant increase from parity ≤ 4 to parity >4 , all showing p-value <0.001 . All 4 cases of adenocarcinoma were multiparous. Proportion of cases of SCC increased with increasing parity, from 20% in p_{0-1} , 42.2% in p_{2-4} to 52.4% in $p_{>4}$. Proportion of HSIL showed a decrease with parity from 40% in p_{0-1} (2/5) to 19.7% in p_{2-4} (15/76) to 8.5% in $p_{>4}$ (7/82). LSIL cases showed similar proportions in multiparous groups i.e. 28/59 cases (47.5%) in p_{2-4} and 29/59 cases (49.2%) in cases with $p_{>4}$.

Only 48 patients (29.4%) were using some form of contraception. Of all contraceptive measures used, use of OCP was most common; 28/48 patients (58.3%) were using OCPs. Maximum number of contraceptive users were in LSIL group i.e. 14 were using OCPs (50% of all OCP users), 10 were using IUD (62.5%) and all 4 barrier users belonged to this group. Most of the cases were in the age group of 15-20 year at first coitus; 133 cases (81.6%) followed by 19 cases (11.7%) in age group >20 year and 11 cases (6.7%) in <15 year age group. Proportion of cases of SCC decreased with increasing age at first coitus from 63.6% to 47.4% to 31.5% in three age groups.

Most patients; 123/163 (75.5%) did not give any history of addiction. Most common addiction found was pan chewing in 30 cases (18.4%) followed by 8 cases of tobacco (4.9%) and 2 cases (1.2%) of bidi smoking. Out of all 163 cases majority of patients had previous history of PID; 123 cases (75.5%). Degree of anemia was significantly higher in malignant lesions as compared to pre-malignant lesions (t=9.17, p<0.001). Out of 80 cases; 13 (16.3%) cases were recurrent which comprised of 12 cases of SCC (92.3%) and one case of adenocarcinoma (7.7%). Out of all SCC cases 12/76 cases (15.8%) were recurrent while 1/4cases (25%) of adenocarcinoma cases were recurrent.

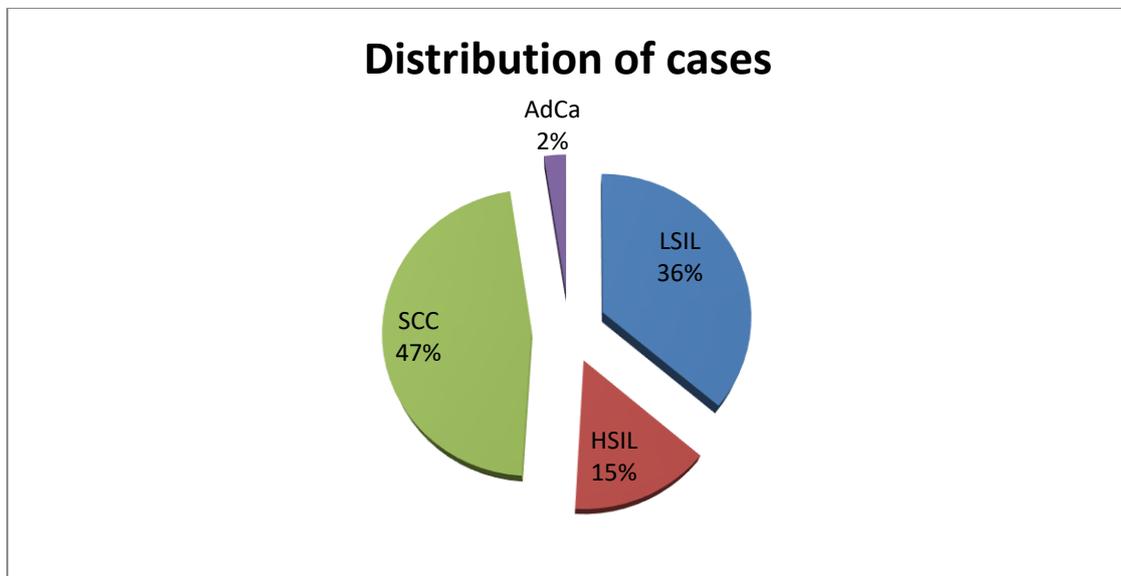


Figure 1: Showing distribution of cases

Table 1: Distribution of cases of cervical premalignant and malignant lesions according to parity

Distribution of cases of cervical premalignant and malignant lesions according to parity (n=163)					
Parity	LSIL	HSIL	SCC	Adenocarcinoma	Total
0-1	2(3.4%) [40%]	2(8.3%) [40%]	1(1.3%) [20%]	0(0%) [0%]	5(3.1%) [100%]
2-4	28(47.5%) [36.8%]	15(62.5%) [19.7%]	32(42.1%) [42.2%]	1(25%) [1.3%]	76(46.6%) [100%]
>4	29(49.2%) [35.4%]	7(29.2%) [8.5%]	43(56.6%) [52.4%]	3(75%) [3.7%]	82(50.3%) [100%]

Total	59(100%) [36.2%]	24(100%) [14.7%]	76(100%) [46.6%]	4(100%) [2.5%]	163 (100%)
t-score	0.32	1.87	1.52	1.14	-
p-value	0.75	0.06	0.13	0.26	-

Table 2: Distribution of cases of cervical premalignant and malignant lesions according to contraceptive method adopted

Distribution of cases of cervical premalignant and malignant lesions according to contraceptive method adopted (n=163)					
Contraceptive used	LSIL	HSIL	SCC	Adenocarcinoma	Total
Nil	31(52.5%) [27%]	16(66.7%) [13.9%]	65(85.5%) [56.5%]	3(75%) [2.6%]	115(70.6%) [100%]
OCP	14(23.7%) [50%]	6(25%) [21.4%]	8(10.5%) [28.6%]	0(0%) [0%]	28(17.2%) [100%]
IUD	10(16.9%) [62.5%]	2(8.3%) [12.5%]	3(4%) [18.8%]	1(25%) [6.2%]	16(9.8%) [100%]
Barrier	4(6.9%) [100%]	0(0%) [0%]	0(0%) [0%]	0(0%) [0%]	4(2.4%) [100%]
Total	59(100%) [36.2%]	24(100%) [14.7%]	76(100%) [46.6%]	4(100%) [2.5%]	163 (100%)
χ^2	11.8	1.55	8.92	1.76	
p-value	0.01	0.67	0.03	0.62	

Discussion:

Minimum age of patients under our study was 23 years and maximum age was 75 years. Maximum number of patients, 101/163 (62%) belonged to 40-60 years of age group. We found 59/163 cases (36.2%) of LSIL, 24/163 cases (14.7%) of HSIL, 76/163 cases (46.6%) of SCC and 4/163 cases (2.5%) of adenocarcinoma. Our findings are similar to present age trend in various ethnic groups. (cancer.gov). Parity of women under study ranged between 1 and 11. Mean parity for LSIL group was 4.7 ± 2.1 , for HSIL 3.9 ± 2.1 , for SCC 4.9 ± 2.1 and for adenocarcinoma it was 6 ± 2.5 . Our findings were similar to studies done by **Jissa et al (2012)**, **Paul et al (2011)**, **Parkin et al (2005)**, **Khanna et al (2001)** all of whom reported a significant increase of cervical cancer cases with increasing parity. **Jissa et al (2012)** observed that the incidence increased most significantly in women with parity more than 4. **Khanna et al (2001)** reported mean parity of patients with cervical neoplasia as 4.19 ± 1.38 . However, in the study conducted by Lee et al (2007), the mean parity of cervical cancer patients was only 2.59. Out of all contraceptive users in our study, 28 belonged to LSIL group. Lower incidence of higher grade lesions in barrier contraceptive users was probably an indirect effect of barrier contraceptive methods to prevent PIDs and STDs (Herndan et al, 2004; Wang et al, 2003; Hatcher, 2002) which themselves are independent risk factors for cervical lesions. Studies by **Parkin et al (2011)** and **Appleby et al (2007)** found increased risk of carcinoma cervix with OCP use.

Mean overall age at the onset of sexual activity was 17.7 ± 2.2 years. Mean age at first coitus for LSIL group was 17.9 ± 2.3 years, for HSIL group 18.2 ± 2.3 years, 17.4 ± 2.1 years for SCC patients and 16.8 ± 1.7 years for adenocarcinoma. In their study, **Jissa et al (2012)** found no significant association with incidence of cervical cancer with respect to age at marriage. **Satya B. et al (2011)** observed a distinct declining chance of carcinoma cervix occurrence in them who got married after 20 years of age. **Deacon et al (2000)** found increased incidence of CIN3 in patients who had earlier onset of sexual activity especially for the group with sexual activity before 16 years of age.

Our results with respect to association with addiction were similar to studies done by **Parkin et al (2011)**, **Berrington et al (2007)**, **Deacon et al (2000)**, **Szarewski et al (1996)**, **Brinton et al (1992)**, **Bosch et al (1992)** etc. Study done by **Berrington et al (2007)** which is one of the largest studies showed 50% increased risk of cervical cancer in current smokers. **Holschneider, C., et al (2000)** linked Loss of fragile histidine triad (FHIT) gene expression with cigarette smoking and cervical cancer.

Almost half of the patients in our study with PID; 61/123 (49.6%) suffered from SCC. Out of 76 patients of SCC, 61 (80.3%) suffered from PID. Many studies have linked cervical intraepithelial lesions and carcinoma with various organisms. Association with HPV is the most significant (**Silinsa et al; 2004**). Other infections associated with cervical cancers are Chlamydia (**Wallin et al, 2002**), HIV (**Schwartz et al, 1991**) and bacterial vaginosis (**Nam et al, 2009**). Previous studies by **Rotman et al (2006)** and **Eifel et al (1995)** show lower rate of recurrence in adenocarcinoma and adenosquamous histology.

Conclusions and recommendations:

In view of above findings, it can be **concluded** that premalignant and malignant lesions of cervix are more commonly seen in older age groups, in women with high parity; more so in those with parity >4, in women who had first sexual intercourse at an early age, women belonging to lower social class and women suffering from PID. Barrier contraceptive methods may have some protective role against carcinoma cervix. So, regular Pap screening programs and social education can help in reducing the incidence of cancer cervix.

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