Spectrum of Cervical Lesions in Papanicolaou Smears Examination in a New Tertiary Care Centre

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ABSTRACT

Introduction: Cervical Papanicolaou smear examination is an effective procedure to detect premalignant, malignant and various benign lesions of cervix. We took this retrospective study to find out the spectrum of cervical lesions in a newly formed tertiary care centre.

Material and methods: All the data regarding clinical history and cytology report were collected from data register of Papanicolaou smear clinic for the duration of 12 months, from August 2016 to July 2017 and filled in a pre-designed proforma.

Results: Out of a total 571 cases, 95.97% cases were diagnosed as Negative for Intraepithelial Lesion or Malignancy, 1.58% Low-grade Squamous Intra-epithelial Lesion, 1.05% High-grade Squamous Intra-epithelial Lesion, 1.05% Atypical Squamous Cells not excluding HSIL and 0.35% as squamous cell carcinoma. Among the benign lesions 47.81% had no pathology, 28.47% had non-specific inflammation, 15.51% Trichomonas vaginalis, 4.20% bacterial vaginosis and 4.01% had atrophic smear. 28.72% of total cases had no symptom. 1.83% of the asymptomatic cases were diagnosed as Low-grade Squamous Intra-epithelial Lesion.

Conclusion: Routine Papanicolaou smear examination needs to be implemented among all married female patients attending various out-patient departments of this institute. Full microbiological work-up along with periodic Papanicolaou smear examination of 'inflammatory cervical smears' is necessary.

Keywords: Low-grade Squamous Intra-epithelial Lesion, Papanicolaou Smear, Trichomonas vaginalis

INTRODUCTION

Carcinoma of cervix is considered as the 7th most common cancer in human and 4th most common among women worldwide.[1,2] It was responsible for 7.5% of all cancer death among women in 2012.[2,3] The mortality rate varied widely in different regions across the globe ranging from <2 per 100,000 population in European regions to >20 per 100,000 population in African regions.[2,3] Indian women have a cumulative lifetime risk and death risk due to carcinoma cervix of about 2.5% and 1.4% respectively.[3,4] The age adjusted incidence rate of cervical cancer varies across India from 23.07 per 100,000 population in Mizoram to 4.91 per 100,000 population in Dibrugarh.[4]

Papanicolaou (PAP) smear examination is an effective, easy, non-invasive screening procedure for cervical carcinoma. Over the years its importance and relevance have been well established. This procedure has now become popular for screening of cervical carcinoma. Though PAP smear examination is primarily aimed at diagnosing the premalignant conditions of cervix, we can diagnose various infective and non-infective benign lesions of cervix also. Most of these benign lesions are easily treatable.

Our medical college is newly established. We have started PAP smear examination since August 2016. So we undertook the present study to find out the pattern of various cervical lesions and the clinical profiles of patients attending our PAP smear clinic. This knowledge would guide us to formulate a working protocol of the PAP smear clinic balancing the need of local population and the available resources.

MATERIAL AND METHODS

It was a retrospective study, done from the data registers of the PAP smear clinic in the department of Pathology, College of Medicine and JNM Hospital, Kalyani, Nadia, for a period of 12 months from August 2016 to July 2017. This medical college is a new one and PAP smear examination was started since August 2016.

All the patients referred to the clinic from various departments of this institute were included in the study. The patients who came for multiple visits, the result of only the first visit was included. The "unsatisfactory smears for evaluation" cases were excluded from the study. Age, clinical presentation and pathological diagnoses of each case were recorded in a predesigned case record proforma.

In the PAP clinic standard procedure for conventional smear was followed. The patients were placed in the dorsal lithotomy position and a Cusco's bivalve speculum was introduced through vagina to visualize cervix. The specimen was collected with the help of Ayer's spatula and cytobrush from the squamo-columnar junction. The cellular material thus obtained was gently and quickly smeared on two clean glass slides. The smears were then fixed immediately in 95% ethyl alcohol and stained according to standard technique for Papanicolaou stain. Cytological evaluation of each cervical smear was done and reported following Bethesda System Guidelines (2015).

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STATISTICAL ANALYSIS

Microsoft office 2007 was used for the analysis. Descriptive statistics like mean and percentages were used for the analysis.

RESULTS

In our study out of a total 571 cases, 95.97% (548) were diagnosed as Negative for Intraepithelial Lesion or Malignancy (NILM), 1.58% (9) cases as Low-grade Squamous Intra-epithelial Lesion (LSIL), 1.05% (6) as High-grade Squamous Intra-epithelial Lesion (HSIL) and 1.05% (6) as Atypical Squamous Cells not excluding HSIL (ASCH) and only 2 cases (0.35%) were diagnosed as squamous cell carcinoma of cervix (SCC). The age group of our study population ranged from 15 years to 80 years. Majority of the cases (19.09%) belonged to 40 – 44 years of age group, followed by 30 – 34 years age group (14.7%). 74.25% of total cases were from 25 – 49 years age group. We found no

LSIL case below 35 years and no HSIL case below 40 years. All the premalignant cases were from 35 years to 69 years of age group (Table 1).

Among the benign lesions (n=548), most of the cases had no pathology (n=262, 47.81%), followed by non-specific inflammatory lesions (n=156, 28.47%), Trichomonas vaginalis (TV) (n=85, 15.51%), Bacterial vaginosis (BV) (n=23, 4.20%) and Atrophic smear (n=22, 4.01%). Except one case (41 years), all the cases of atrophic smear were above 50 years of age. Most of the TV cases (n=78, 91.76%) were below 50 years with no case above 65 years. All BV cases belonged to 25 years - 49 years of age group, except one case (60 years) (Table 2).

164 patients (28.72% of study population) came for routine PAP smear examination without any symptom. Among the symptomatic patients, vaginal discharge was the most common symptom (43.43%) (Table 3).

Out of 164 asymptomatic cases, majority (141, 85.98%) had

Age group (Years)	NILM	LSIL	HSIL	ASCH	SCC	Total
15-19	9	0	0	0	0	9
20-24	40	0	0	0	0	40
25-29	74	0	0	1	0	75
30-34	84	0	0	0	0	84
35-39	78	1	0	0	0	79
40-44	105	1	1	1	1	109
45-49	74	0	2	1	0	77
50-54	28	2	1	0	0	31
55-59	19	0	1	0	0	20
60-64	17	4	1	2	1	25
65-69	12	1	0	0	0	13
70-74	3	0	0	1	0	4
75-79	2	0	0	0	0	2
≥ 80	3	0	0	0	0	3
TOTAL	548(95.97%)	9(1.58%)	6(1.05%)	6(1.05%)	2(0.35%)	571 (100%)

*NILM: Negative for Intraepithelial Lesion and Malignancy, LSIL: Low grade Squamous Intraepithelial Lesion, HSIL: High grade Squamous Intraepithelial Lesion, ASCH: Atypical Squamous Cell not excluding HSIL, SCC: Squamous Cell Carcinoma.

Table-1: Age distribution of cervical lesions (N=571)

Age group (Years)	Non- specific inflammation	TV	BV	Atrophic	No pathology	Total
15-19	1	2	0	0	6	9
20-24	10	10	0	0	20	40
25-29	26	6	6	0	36	74
30-34	19	16	3	0	46	84
35-39	22	11	6	0	39	78
40-44	33	19	4	1	48	105
45-49	20	14	3	0	37	74
50-54	7	3	0	3	15	28
55-59	5	3	0	2	9	19
60-64	6	1	1	6	3	17
65-69	4	0	0	5	3	12
70-74	1	0	0	2	0	3
75-79	1	0	0	1	0	2
≥ 80	1	0	0	2	0	3
Total	156 (28.47%)	85 (15.51%)	23 (4.2%)	22 (4.01%)	262 (47.81%)	548 (100%)

*NILM: Negative for Intraepithelial Lesion and Malignancy, TV: Trichomonas Vaginalis, BV: Bacterial Vaginosis.

Table-2: Age distribution of benign cervical lesions (NILM cases, n=548)

Age group (Years)	No complaint	Discharge	Itching	Pain abdomen	Abnormal menstruation	Bleeding p/v	Others	Total
15-19	2	4	0	0	3	0	0	9
20-24	11	19	1	5	4	2	0	40
25-29	20	36	0	9	11	3	0	75
30-34	28	34	3	7	9	4	1	84
35-39	24	33	0	3	15	2	1	79
40-44	26	56	4	6	18	7	2	109
45-49	27	31	2	8	9	5	2	77
50-54	10	12	1	4	3	1	3	31
55-59	6	7	1	2	0	2	2	20
60-64	6	6	6	1	0	6	3	25
65-69	3	4	3	0	0	3	2	13
70-74	1	3	0	0	0	0	0	4
75-79	0	2	0	1	0	0	1	2
≥ 80	0	1	1	0	0	0	1	3
Total	164 (28.72%)	248 (43.43%)	22 (3.85%)	46 (8.06%)	72 (12.61%)	35 (6.13%)	18 (3.15%)	605

(Many patients had more than one complaint. Hence the total numbers of complaints were more than the total number of cases.)

Table-3: Types of complaints according to age distribution (N=571)

Age group (Years)	Non-specific inflammation	No pathology	TV	BV	Atrophic	LSIL	HSIL	ASCH	Total
15-19	0	2	0	0	0	0	0	0	2
20-24	0	10	1	0	0	0	0	0	11
25-29	0	20	0	0	0	0	0	0	20
30-34	1	26	0	1	0	0	0	0	28
35-39	2	22	0	0	0	0	0	0	24
40-44	1	24	0	0	1	0	0	0	26
45-49	3	23	0	1	0	0	0	0	27
50-54	0	7	0	0	2	1	0	0	10
55-59	0	4	0	0	2	0	0	0	6
60-64	0	1	0	0	3	2	0	0	6
65-69	0	2	0	0	1	0	0	0	3
70-74	0	0	0	0	1	0	0	0	1
75-79	0	0	0	0	0	0	0	0	0
≥ 80	0	0	0	0	0	0	0	0	0
Total	7 (4.27%)	141 (85.98%)	1 (0.61%)	2 (1.22%)	10 (6.10%)	3 (1.83%)	0 (0%)	0 (0%)	164 (100%)

*TV: Trichomonas Vaginalis, BV: Bacterial vaginalis, LSIL: Low grade Squamous Intraepithelial Lesion, HSIL: High grade Squamous Intraepithelial Lesion, ASCH: Atypical Squamous Cell not excluding HSIL.

Table-4: Types of cervical pathology found in asymptomatic cases (n=164)

no pathology with 10 cases (6.10%) had atrophic smear. But, 3 cases (1.83%) were diagnosed as LSIL (Table 4).

DISCUSSION

Cervical carcinoma is an important cause of death due to cancer in women. It has a long premalignant phase when, if diagnosed, it can be treated successfully. PAP smear screening is effective in identifying these premalignant cases. We have studied a total of 571 cases who attended our PAP smear clinic from August 2016 to July 2017. The age group of the study population ranged from 15 – 80 years that was quite similar to those of Isaoglu et al[5], Bukhari et al[6], Banik et al.[7] We found maximum number of cases in 40 – 44 years group (19.09%), followed by 30 – 34 years age group (14.7%). So, 32.57% of the study population were in 5th decade, followed by 28.55% in 4th decade and 20.14% in

3rd decade. Bal et al[8] found maximum number of cases in the 4th decade (45.3%), followed by 33.3% in 3rd decade, 17.7% in 5th decade. Bamanikar et al[9] found maximum number of cases in the 4th decade (32.68%).

Majority of the present study population was of NILM category (95.97%). Only 4.03% cases showed epithelial cell abnormality. This is in accordance with Patel et al[10] who showed 5.5% cases of premalignant and malignant lesions, 94.5% of benign and inflammatory. Bamanikar et al[9] found 5.35% cases with epithelial cell abnormality. Tailor et al[11] showed 1.9% premalignant and malignant lesions. Banik et al[7] found 8.18% of cases had epithelial cell abnormality. But it was in sharp contrast to Isaoglu et al[5] who described 0.41% cases having epithelial cell abnormality. Bukhari et al[6] showed that 10.2% cases had premalignant or malignant

features. The variation in results was due to difference in geographic location and total number of study population.

We found 9 cases of LSIL (1.58%), 6 cases of HSIL (1.05%) and 2 cases of SCC (0.35%). Our study population had 6 cases of ASCH (1.05%). All the LSIL, HSIL, SCC cases were above 40 years age group except one LSIL case which was in 35 – 39 years age range. Bal et al[8] in their study showed 2.7% cases of LSIL and 0.3% cases of HSIL, 1% case of SCC. Isaoglu et al[5] showed 0.02% cases of LSIL, 0.02% ASCH and 0.008% cases of HSIL among the total study population. Banik et al[7] found 53.96% of women in 20-44 years age group and 46.04% in >45 years. In their study most of the cases of HSIL were >45 years age. Patel et al[10] showed 0.1% cases of LSIL and HSIL each, 0.7% cases of SCC. Tailor et al[11] found 0.35% cases of ASCH and SCC each. But all these studies including the present study had LSIL as the most common epithelial cell abnormality.

In the present study, among the NILM cases 47.81% had no pathology. Some were atrophic (4.01%) and rest were inflammatory (48.18%). This was almost similar to the study by Isaoglu et al[5] where they found 57.4% cases within normal limits and 41% cases having inflammation. Bamanikar et al[9] showed different result in having 16.96% cases with no pathology. The study by Bal et al[8] showed only 16.7% cases having normal cytological findings. Patel et al[10] found 19.5% cases having no pathology. Tailor et al[11] showed 24.84% normal case. In our study the group having no symptoms was actually hospital staffs who came on their own for routine PAP screening. Most of them (85.98%) had no pathology. Hence the proportion of "no pathology" group was much higher in our study than that of others.

In the present study 28.47% cases had non-specific inflammation, 15.51% had Trichomonas vaginalis infection and 4.2% had bacterial vaginosis. Bamanikar et al[9] found 68.93% non-specific inflammation, 0.54% Trichomonas vaginalis. The study by Bal et al[8] showed 71.3% non-specific inflammation and 0.3% Trichomonas infection. Our study had much higher proportion of Trichomonas infection as compared to other studies. Trichomonas infection is a sexually transmitted infection. Presence of sexually transmitted diseases (STD) is an established risk factor for cervical carcinoma. This emphasizes the necessity of follow up of these patients and periodic PAP smear screening.

28.72% of total population of present study had no symptom and came for routine PAP smear screening. This group included those cases that came spontaneously for routine PAP smear screening. Maximum cases (85.98%) of this group had no pathology, while atrophic smear and inflammatory smear comprised 6.1% each. But the important finding was presence of LSIL (1.83%) in this asymptomatic population. This signifies the importance of routine PAP smear screening. Among the symptomatic patients, vaginal discharge was the most common symptom (43.43%), followed by abnormal menstruation (12.61%), pain abdomen (8.06%), bleeding per vagina (6.13%). The study by Bal et al[8] showed vaginal discharge as the most common presenting complaint (59%), followed by pain abdomen (19.3%). Bamanikar et al[9] found

that the commonest presenting complaint was vaginal discharge (51.8%), followed by pain abdomen (40.9%). So, overall abnormal vaginal discharge was the main presenting complaint in all these studies.

Our study showed presence of low-grade squamous intraepithelial lesion even in asymptomatic cases. They were the hospital staffs having higher level of awareness than general population. So the actual prevalence of LSIL is likely to be higher in general population. This necessitates the implementation of PAP smear screening among all married female patients attending different out-patient departments (OPD) of this institute, irrespective of their presenting complaint. Another important observation of our study was presence of higher numbers of Trichomonas vaginalis infection. So in all cases of "inflammatory smear", full microbiological workup needs to be done.

CONCLUSION

So we conclude that routine PAP smear screening needs to be implemented among all married female patients attending various OPDs of this institute at an earliest. We also recommend full microbiological work-up and periodic PAP smear examination of all cases of 'inflammatory cervical smears'.

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