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Original Article

Cytopathological study of cervical smears and corelation of findings with risk factors.

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ABSTRACT

Cervical malignancy is the second most common cancer in women worldwide, In present study, results of 400 Pap smears are analyzed ,which had been examined in cytology section (Department of Pathology, P.D.U. Medical College, Rajkot) during 2 years time duration (2009-2010). All cervical smears collected and stained by Pap staining method. The smears were reported using The Bethesda system 2001. The commonest complaints observed during study were abnormal vaginal discharge (46.5%) and menstrual abnormalities (20.5%). According to classification of smears by Bethesda system, 18(4.5%) were unsatisfactory, 148(37%) were normal, 07(1.25%) had atrophic changes, 190(47.5%) were inflammatory, 03(0.75%) were ASCUS, 20(5%) were LSIL, 11(2.75%) were HSIL and 03(0.75%) were squamous cell carcinoma. , majority patients had 2 children 144(36%) and study showed that high parity was associated with higher occurrence of premalignant and malignant lesions of cervix. Pap smear is a simple, cheap, safe and practical diagnostic tool for early detection of cervical cancer in high risk group population and therefore should be established as routine screening procedure. It is recommended that reporting should be done by The Bethesda System as it improves the reproducibility and helps in identification of ASCUS and AGUS lesions and plays a key role to diagnose various intraepithelial lesions and invasive lesions at an early stage and manage them properly.

1. Introduction

Cervical malignancy is the second most common cancer in women worldwide following breast cancer, and the leading cause of death by cancer. It is one of the most preventable and curable of all cancers. The Papanicolaou smear is most useful tool for detection of abnormal cells that may be due to preneoplastic lesions or frank malignancy. The test is named after Dr. George Papanicolaou who introduced it in 1941[1]. The easy accessibility of the cervix and the propensity of the cancer cells to exfoliate from its surface have enabled us to study the process of malignant transformation in the cervix in very early stage [2].

Currently Pap test has gained wide popularity not only as a diagnostic test in patients but also as an important routine screening test in asymptomatic women due to its simplicity and cost effectiveness [3].

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2. Materials and Methods

In present study, results of 400 Pap smears are analyzed ,which had been examined in cytology section (Department of Pathology, P.D.U. Medical College, Rajkot) during 2 years time duration (2009-2010). All of the patients had some relevant gynecological complaints who presented to gynecology O.P.D. The age of the screened patients was in the range of 18-80 years .

Cervical smears were collected by gynecologist with plastic spatula [4].

All cervical smears collected were fixed by 100% methanol and stained by Pap staining method [5].

The relevant clinical data were collected by gynecologists, including the exact day of menstrual cycle, age of patients, parity, presenting symptoms etc.,history had been elicited.

The smears were reported using The Bethesda system 2001 [6], [7],[8].

3. Results and discussion

Table 1. Distribution of patients according to symptoms

In present study, results of 400 Pap smears are analyzed, which had been examined in cytology section (Department of Pathology, P.D.U. Medical College, Rajkot) during 2 years (2009-2010)Following were the observations.

Symptoms	No.of patients (n=400)	Percentage (%)
Discharge	186	46.5
Menstrual abnormalities	82	20.5
Lower abdominal pain	38	9.5
Backache	23	5.75
Post coital bleeding	21	5.25
Infertility	08	2
Post menopausal bleeding	07	1.75
Other complains	35	8.75
Total	400	100

Table 2. Distribution of patients according to cytopathological findings

According to classification of smears by Bethesda system, 18(4.5%) were unsatisfactory, 148(37%) were normal, 07(1.25%) had atrophic changes, 190(47.5%) were inflammatory, 03(0.75%) were ASCUS, 20(5%) were LSIL, 11(2.75%) were HSIL and 03(0.75%) were squamous cell carcinoma.

The commonest lesion was inflammatory, followed by squamous intraepithelial neoplasia and squamous cell carcinoma

Finding	No.of patients (n=400)	Percentage (%)
Inflammatory changes		
Acute inflammation	143	36
Chronic inflammation	39	9.75
Trichomonas vaginalis	02	0.5
Bacterial vaginosis	01	0.25
Actinomycetes	00	00
Candida	02	0.5
Herpes simplex virus	03	0.75
Total inflammatory smears	190	47.5
Epithelial abnormalities		
ASCUS	03	0.75
ASCH	00	00
Low grade squamous intraepithelial lesions (LSIL)	20	5
High grade squamous intraepithelial lesions(HSIL)	11	2.75
Squamous cell carcinoma	03	0.75
Any glandular lesions	00	00
Total No. of smears showing epithelial abnormalities	37	9.25
TOTAL	400	100

Table 3. Age wise distribution of inflammatory smears

Overall incidence of inflammatory lesions was highest in 2nd decade followed by 3rd decade.

Out of 190 cases of inflammatory smears, there were 143(36%) cases of acute cervicitis, 39(9.75%) cases of chronic cervicitis, 02(0.5%) cases of Trichomomas vaginalis, 01(0.25%) cases of Bacterial vaginosis, 03(0.75%) cases of Candidiasis and 03(0.75%) cases of Herpes simplex virus.

Age group (years)	Total patients in age group	Acute inflammation No.(%)	Chronic inflammation No.(%)	Trichomonas vaginalis No.(%)	Bacterial vaginosis No.(%)	Candida No.(%)	Herpes simplex virus No.(%)	Total No.(%)
<20	05	02(40)	00	00	01	00	00	03(60)
20-29	97	51(52.57)	11(11.4)	01(1.03)	(20)00	00	01(1.03)	64(65.97)
30-39	139	58(41.72)	14 (10.07)	01(0.71)	00	01(0.71)	00	74(53.21)
40-49	82	21(25.60)	08(9.75)	00	00	01(1.21)	01	31(37.80)
50-59	42	06(14.28)	03(7.14)	00	00	00	(1.21)01	10(23.80)
>60	35	05(14.28)	03(8.57)	00	00	00	(2.38)00	08(22.25)
Total	400	143	39	02	01	02	03	190

(Figures in the bracket indicates percentage of the lesions in the respective age group)

Table 4. Age wise distribution of squamous epithelial cell abnormalities.

ASCUS incidence was highest in 5th decade.
Incidence of LSIL, HSIL and Squamous cell carcinoma were highest after 6th decade.

Age group (years)	Total patients in age group	ASCUS No.(%)	LSIL No.(%)	HSIL No.(%)	Squamous cell carcinoma No.(%)	Total No.(%)
<20	05	00	00	00	00	00
20-29	97	00	01(1.03)	00	00	01(1.03)
30-39	139	00	03(2.15)	02(1.44)	00	05(3.59)
40-49	82	01(1.21)	08(9.75)	04(4.87)	01(1.21)	14(17.07)
50-59	42	02(4.76)	03(7.14)	02(4.76)	01(2.38)	08(19.04)
>60	35	00	05(14.28)	03(8.57)	01(2.85)	09(25.71)
Total	400	03	20	11	03	37

(Figures in the bracket indicates percentage of the lesions in the respected age group)

Table 5. Distribution of epithelial abnormalities according to Parity

Regarding parity, majority patients had 2 children 144(36%) and study showed that high parity was associated with higher occurrence of premalignant and malignant lesions of cervix.

Parity	Total patients in age group	ASCUS No.(%)	LSIL No.(%)	HSIL No.(%)	Squamous cell carcinoma No.(%)	Total No.(%)
Nulliparous	35	00	00	00	00	00
Para I	118	00	04(3.38)	02(1.69)	00	06(5.08)
Para II	144	02(1.38)	07(4.86)	04(2.77)	01(0.69)	14(9.72)
Para III and above	103	01(0.97)	09(8.73)	05(4.85)	02(1.94)	17(16.50)
Total	400	03	20	11	03	37

(Figures in the bracket indicates percentage of the lesions in the respective age group)

Table 6. Distribution of epithelial abnormalities according to Religion

Regarding the religion of the patients 317(79.25%) were Hindus and 83(20.75%) were Muslims. No any significant difference observed in the incidence of epithelial abnormalities in both religions.

Religion	Total patients in age group	ASCUS No.(%)	LSIL No.(%)	HSIL No.(%)	Squamous cell carcinoma	Total No.(%)
Hindu	317	02(0.63)	16(5.04)	08(2.52)	03(0.94)	29(9.14)
Muslim	83	01(1.20)	04(4.81)	03(3.61)	00	08(9.63)
Total	400	03	20	11	03	37

(Figures in the bracket indicates percentage of the lesions in the respective age group)

Table 7. Distribution of epithelial abnormalities according to locality

Regarding locality of the patients majority of the patients 176(44%) were from rural area, 155(38.75%) were urban slum and 69(17.25%) urban area. Incidence of preneoplastic and neoplastic lesions was highest in patients residing in urban slum areas.

Religion	Total patients in age group	ASCUS No.(%)	LSIL No.(%)	HSIL No.(%)	Squamous cell carcinoma No.(%)	Total No.(%)
Urban	69	00	01(1.44)	02(2.89)	00	03(4.34)
Urban Slum	155	02(1.29)	09(5.80)	05(3.22)	02(1.29)	18(11.61)
Rural	176	01(0.56)	10(5.68)	04(2.27)	01(0.56)	16(9.09)
Total	400	03	20	11	03	37

(Figures in the bracket indicates percentage of the lesions in the respective age group)

Table 8. Distribution of patients according to age at first sexual intercourse.

Early age(<18 years) at first sexual intercourse is found to associated with more chances of development of premalignant and malignant lesions of the cervix.

Age at first sexual intercourse(years)	Total patients in age group	ASCUS No.(%)	LSIL No.(%)	HSIL No.(%)	SCC No.(%)	Total No. of (%)
<18	117	01(08.5)	12(10.25)	06(5.12)	02(170)	21(17.94)
18-25>	245	02(0.81)	02(0.81)	04(163)	01(0.40)	15(6.12)
25	38	00	00	01(2.63)	00	01(0.630)
Total	400	03	20	11	03	37

4. Conclusions

Pursuing the aims of the study, following conclusions are made.

Pap smear is a simple, cheap, safe and practical diagnostic tool for early detection of cervical cancer in high risk group population and therefore should be established as routine screening procedure.

Pap smear is a valuable tool for investigation as a screening procedure in asymptomatic women and as a diagnostic procedure in symptomatic women.

It also has an important role in diagnosis of inflammatory lesions including the identification of causative organism, atrophic changes, changes of radiation therapy and some rare tumors.

It is recommended that reporting should be done by The Bethesda System as it improves the reproducibility and helps in identification of ASCUS and AGUS lesions and plays a key role to diagnose various intraepithelial lesions and invasive lesions at an early stage and manage them properly.

High incidences of squamous cell abnormalities are found in patients from urban slum and rural areas, multiparous patients and in patients with younger age at first coitus.

All suspicious lesions on Pap smears should be followed by repeat Pap smear examination, colposcopy or cervical biopsy.

Health awareness programs particularly by Media and Government with their implementation in the form of screening camps would be a great help to women particularly in rural and urban slum areas.

Abbrevations used in text:-

ASCUS-Atypical squamous cells of undetermined significance.
ASC-H-Cannot exclude HSIL.
LSIL-Low grade squamous intraepithelial lesion.
HSIL-High grade squamous intraepithelial lesions.
SCC-Squamous cell carcinoma.
AGCUS-Atypical glandular cell of undetermined significance.

Table 9. Cytopathological findings in HIV positive patients incidence of both inflammatory lesions and epitheltal abnormalties are higher in HIV positive women as compared to HIV negative women.

Early age(<18 years) at first sexual intercourse is found to associated with more chances of development of premalignant and malignant lesions of the cervix.

Finding	No.of patients (n=400)	Percentage (%)
Inflammatory changes		
Acute inflammation	10	52.63
Chronic inflammation	02	10.52
Trichomonas vaginalis	00	00
Bacterial vaginosis	00	00
Actinomycetes	00	00
Candida	01	5.26
Herpes simplex virus	01	5.26
Total inflammatory smears	14	73.68
Epithelial abnormalities		
ASCUS	00	00
ASCH	00	00
Low grade squamous	03	15.78
intraepithelial lesions (LSIL)	02	10.52
High grade squamous		
intraepithelial lesions(HSIL)	00	00
Squamous cell carcinoma		
Any glandular lesions	00	00
Total No. of smears showing	05	26.31
epithelial abnormalities		
TOTAL	19	100

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