## Original Research Article

# Utility of Papanicolaou's smears in the diagnosis of premalignant and malignant lesions of the cervix in a tertiary care centre of South Gujarat, India

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### ABSTRACT

**Background:** "Preventable but not prevented", this is the reality of cervical cancer today, at least in developing countries. 80% of all the cases of cervical cancer occur in these developing countries. In India, cervical cancer is the leading cause of cancer related deaths in women. The Papanicolaou test is simple, quick, and painless. It is capable of detecting cervical cancer at an early stage and is used widely in developed countries, where it has decreased both the incidence and mortality of cervical cancer. Objective of the study was conducted to determine the importance of conventional Pap smears for the diagnosis of inflammatory, premalignant and malignant lesions of the cervix.
**Methods:** This cross-sectional study was conducted from January 2017 to June 2018 on 2000 women coming for a Pap smear examination in Government Medical College attached to New Civil Hospital, Surat. After doing Pap stain, all cases were reported as per the 2014 Bethesda system.
**Results:** A total of 2000 cases of Pap smears were received out of which 1914(95.7%) cases were satisfactory for evaluation, 86(4.3%) cases were unsatisfactory. The frequency of epithelial abnormalities was 3.66%. The age group of 51-60 years showed the highest epithelial abnormalities. The frequency of epithelial abnormalities in asymptomatic women was 2.3%. Out of the 1844 cases, 103(5.6%) showed changes of atrophy, 1011(54.8%) cases showed inflammatory/reactive changes, whereas organisms were seen in 558(30.3%) cases.
**Conclusions:** Pap smear happens to be an economical, safe and pragmatic diagnostic tool for early detection of cervical cancer.

**Keywords:** Bethesda system, Cervical cancer, Epithelial abnormality, Pap smear

## INTRODUCTION

"Preventable but not prevented", this is the reality of cervical cancer today, at least in developing countries like India. 80% of all the cases of cervical cancer occur in these developing countries. In India, cervical cancer is the leading cause of cancer related deaths in women.[1] Every year in India, 122,844 women are diagnosed with cervical cancer and 67,477 die from the disease. India has a population of 432.2 million women aged 15 years and older who are at risk of developing cancer. It is the second most common cancer in women aged 15-44 years.[2]

The goal of cervical cancer screening is to detect preinvasive lesions, which results in reduction of incidence and mortality from invasive cervical cancer.

This concept has been highly successful over last 50 years.[1] The Papanicolaou (Pap) test is a screening test performed using cells from the uterine cervix. The test is simple, quick, and painless. It is capable of detecting cervical cancer at an early stage and is used widely in developed countries, where it has decreased both the incidence and mortality of cervical cancer.

It has been estimated that the use of this simple and cost-effective technique has reduced the incidence of cervical cancer by at least 70%.[3] A primary factor associated with the development of abnormal cells in the cervix is the Human Papilloma Virus (HPV). Any woman who is or has ever been sexually active may have been exposed to it.

Her chances increase with the number of sexual partners that she or her partner has had. Women who had first intercourse at an early age are also at an increased risk. There is no known way to effectively prevent transmission of this virus or treat it once it is acquired. Since HPV can remain dormant for many years, even if a woman is currently not sexually active, she may have the virus as a result of past sexual activity.

Other risk factors include smoking and a compromised immune system (due to chemotherapy or HIV).

A regular pap smear, taken and interpreted by a qualified health care provider, is the only way that women can be certain that any abnormal cells they may develop can be dealt with appropriately.

Originally, the term Pap smear was used for smear made out of posterior Ornix's material for the purpose of detection of cancer and precancerous lesions. But presently, the term is used for smear made from material collected from vagina, endocervical canal, ectocervix or vaginal vault. The Pap smears are identified as vaginal pool smear, vaginocervical smear or vaginal vault smear accordingly.[4]

## METHODS

### Study setting

The present study was done in Department of Pathology, tertiary care hospital affiliated to Medical college. The cases included were those smears received from the Department of Obstetrics and Gynecology and further processed at the Department of Pathology conducted between study period of January 2017 to June 2018 with 2000 cases.

### Study design

This study was a cross sectional study. The smears were collected and fixed in the Department of Obstetrics and Gynecology, as a part of routine procedure and sent to the Department of Pathology for microscopic examination. A detailed clinical history was noted which included age, presenting complaints, menstrual history and obstetric history, including parity, history of hysterectomy and contraception. Their clinical examination was noted which included per abdominal examination, per speculum examination and per vaginal examination.

All these findings were noted down in a prepared proforma. Smears were taken by trained technician from both ectocervix and endocervix for conventional Pap smear. Slides were prepared, labeled, fixed in 95% ethyl alcohol immediately, and subsequently stained by Pap stain. Specimen adequacy was assessed based on the presence of adequate number of squamous epithelial cells; an adequate conventional smear should contain minimum of approximately 8000 to 12,000 well-preserved and well-visualized squamous epithelial cells. All the smears were reported by cytopathologists according to the 2014 Bethesda system.

### Inclusion criteria

Pap smears of all women irrespective of their age, parity, marital status will be included in the study.

## RESULTS

The present study was carried out on 2000 women in the Department of Pathology, tertiary care hospital affiliated to Medical college during a period from January 2017-June 2018. The smears were reported as per the guidelines given in The Bethesda System (2014). Accordingly, satisfactory cervical smears for evaluation were obtained in 1914 cases (95.7%) (Table 1).

The remaining 86 cases (4.3%) were unsatisfactory for evaluation due to low squamous cellularity and presence of obscuring blood, mucinous material or inflammation (Figure 1).

The age range in the present study varied from 18-88 years with a mean age of 53 years. Majority of women were in the 31-40 years age group comprising of 737 cases (38.5%). The youngest patient was 18 years of age and the oldest was 88 years of age (Figure 2).

Amongst the symptomatic cases, abdominal pain, discharge p/v and something coming out per vaginum were the most common presenting complaints, comprising 31.6%, 16.1% and 13.7%, respectively. Other significant complaints were Menorrhagia (8.2%), Amenorrhea (5.6%), irregular menstruation (4.8%) and burning micturition (3.4%) (Figure 3).

Most common findings were healthy cervix (Table 5) followed by uterine prolapse, cervical erosion, mucopurulent discharge and hypertrophied cervixcomprising 48.5%, 14.8%, 9.4%, 9.0% and 7.5%, respectively (Figure 4).

**Table 1: Cytological interpretation as per the 2014 Bethesda system for reporting cervical cytology.**

| Interpretation as: | No. of patients | Percentage (%) |
|---|---|---|
| **Negative for intraepithelial lesion or malignancy** | 1844 | 96.34 |
| Normal smears | 730 | 38.1 |
| **Non-neoplastic findings** | | |
| Atrophy | 103 | 5.3 |
| Reactive cellular changes associated with: | 445 | 23.2 |
| Inflammation (Includes typical repair) | 2 | 0.1 |
| Follicular cervicitis | 2 | 0.1 |
| Radiation | 4 | 0.2 |
| Intrauterine contraceptive device (IUD) | | |
| **Organisms** | | |
| *Trichomonas vaginalis* | 9 | 0.5 |
| Fungal organisms morphologically consistent with *Candida* spp. | 70 | 3.66 |
| Shift in flora suggestive of bacterial vaginosis | 436 | 22.8 |
| Mixed infection | 36 | 1.8 |
| Cellular changes associated with virus | 7 | 0.4 |
| **Epithelial cell abnormalities Squamous cell** | 70 | 3.66 |
| • Atypical squamous cells | | |
| – of undetermined significance (ASC-US) | 26 | 1.36 |
| – cannot exclude HSIL (ASC-H) | 4 | 0.21 |
| • Low-grade squamous intraepithelial lesion (LSIL) | 18 | 0.94 |
| • High-grade squamous intraepithelial lesion (HSIL) | 15 | 0.78 |
| – with features suspicious for invasion | | |
| • Squamous cell carcinoma | 5 | 0.26 |
| **Glandular cell** | | |
| • Atypical | | |
| – glandular cells -NOS | 1 | 0.05 |
| • Atypical | | |
| – Endocervical cells, favor neoplastic | 1 | 0.05 |
| Total | 1914 | 100 |
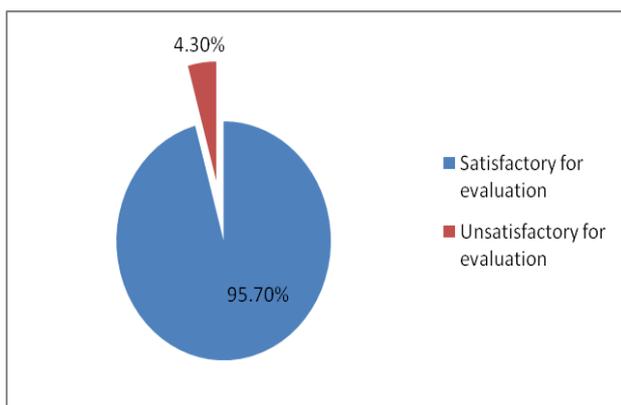


**Figure 1: Distribution of cases according to adequacy of specimen.**

About 948 cases (49.5%) had a parity of three and more, forming the largest group, followed by 711 cases (37.1%) had a parity of 2, forming the second largest group. 175 cases (9.1%) had a parity of 1 and 80 cases (4.1%) were nulliparae (Figure 5).
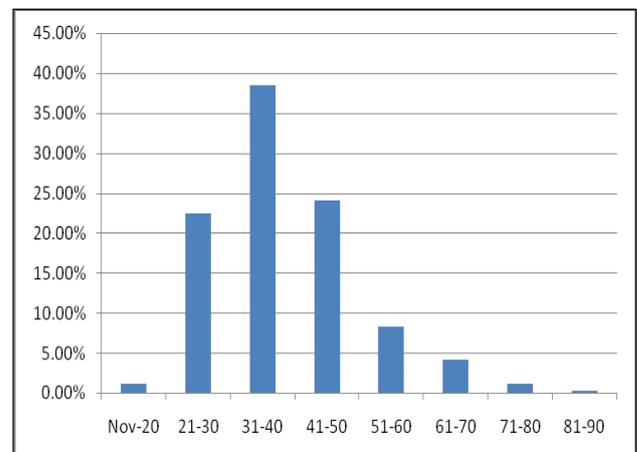


**Figure 2: Distribution of cases within various age groups.**

About 967 cases (50.5%) had a history of Regular menstruation followed by 397 cases (20.7%) were of menopausal.

There were 1844 cases (96.34%) which showed no significant epithelial abnormalities. Epithelial abnormalities like ASCUS, ASC-H, Atypical glandular cells- not otherwise specified, Atypical endocervical cells: favour neoplastic, LSIL, HSIL and Squamous cell carcinoma were found in 70 cases (3.66%).
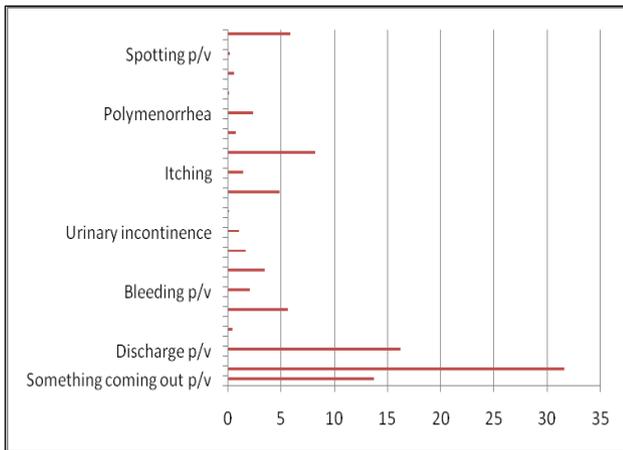


**Figure 3: Distribution of cases according to presenting complaints.**

Figure 6 show the frequency of various epithelial abnormalities. It can be seen that ASCUS was the most common abnormality noted (1.36%), followed by LSIL (0.94%) and HSIL (0.78%). The frequency of squamous cell carcinoma was 0.26% The frequency of ASC-H was 0.21%.

Amongst the glandular lesions, frequency of Atypical endocervical cells: favour neoplastic and Atypical glandular cells:

NOS was found to be similar (0.05% each). ASC/SIL ratio is 0.9.

The age group of 51-60 years showed highest frequency of various epithelial abnormalities (6.7%). The highest frequency of malignancies was noted in 71-80 years age group i.e., 4.5%.

The age group of 61-70 years and 41-50years showed second highest frequency of epithelial abnormalities (3.9%). There were only 5 cases in the age group of 81-90 years, out of which one was diagnosed as ASCUS (20%).

The highest frequency of ASC-H was found in the age group of 41-50 years (0.4%), whereas the same for HSIL was found in the age group of 51-60 years (2.5%) (Table 2).

Majority of the women had a parity ranging from 2 to 4 (76.9%) and the highest frequency of cervical dysplasia/ cancer was also found in women with a parity of 2 to 4.

ASC-H had highest frequency in women with a parity of eight (7.7%) in the present study, although women with parity of 8 constituted only 0.7% of all cases (Table 3).

Cases with malignancies presented most commonly with something coming out p/v, abdominal pain and discharge per vaginum (Table 4).

Out of 1844 cases, 730cases had normal smear. NILM with reactive cellular changes associated with inflammation were noted in 445 cases (24.1%), Reactive cellular changes associated with radiation were noted in 2 cases (0.1%), Reactive cellular changes associated with Intrauterine contraceptive device were noted in 4 cases (0.2%) and Follicular cervicitis were noted in 2 cases (0.1%).

There were 103 cases (5.6%) showed changes of atrophy. There were 436 cases (23.6%) of bacterial vaginosis, 70 cases (3.8%) of candida and 36 cases (2.0%) showing mixed infection. Infection by trichomonas vaginalis was seen in 9 cases (0.5%).

Changes of viral infection were seen in 7cases (0.4%). Majority of inflammatory smears were found in 31-40yeras age group (35.5%), followed by 21-30 years age group (29.5%).

Among the organisms, we found bacterial vaginosis were in 436 (22.8%), candida in 70 (3.6%), trichomonas were 9 (0.5 %), mixed infection were in 36cases (1.8%) and viral changes in 7 (0.4%) of total NILM cases. Out of 1234 cases, who did not use any means of contraception, 24cases had SIL and 5 cases had SCC. Niether SIL nor SCC were detected in O.C.pills users.

However, the cases of SIL were also found in the females using IUCD, Condom and who were permanently sterilized. All 5 cases of SCC were detected in women using no contraception. The overall observation of the table suggests that the higher frequency of SIL and SCC was found in patients not using contraception.

Out of 2000 cases were studied for cytology, 166 cases came to histology for diagnosis. Out of 4 cases of ASCUS, one was reported as SCC and 2were reported as CIN I. One case was diagnosed as ASC-H on cytology, follow up of case was reported as CIN III on histology.

In squamous abnormalities, those were diagnosed as LSIL and diagnosed as HSIL, only 11 cases came for follow up. There were 3 cases of LSIL on cytology, out of which one was reported as CIN I on histology.

There were 8 cases of HSIL on cytology, out of which 2 were reported as CIN I, one was reported as CIN II, one was reported as CIN III, 3 cases were reported as Squamous cell carcinoma on histology. Out of 5 cases diagnosed having squamous cell carcinoma, 2 cases were followed up with histological examination. Both were diagnosed having squamous cell carcinoma.
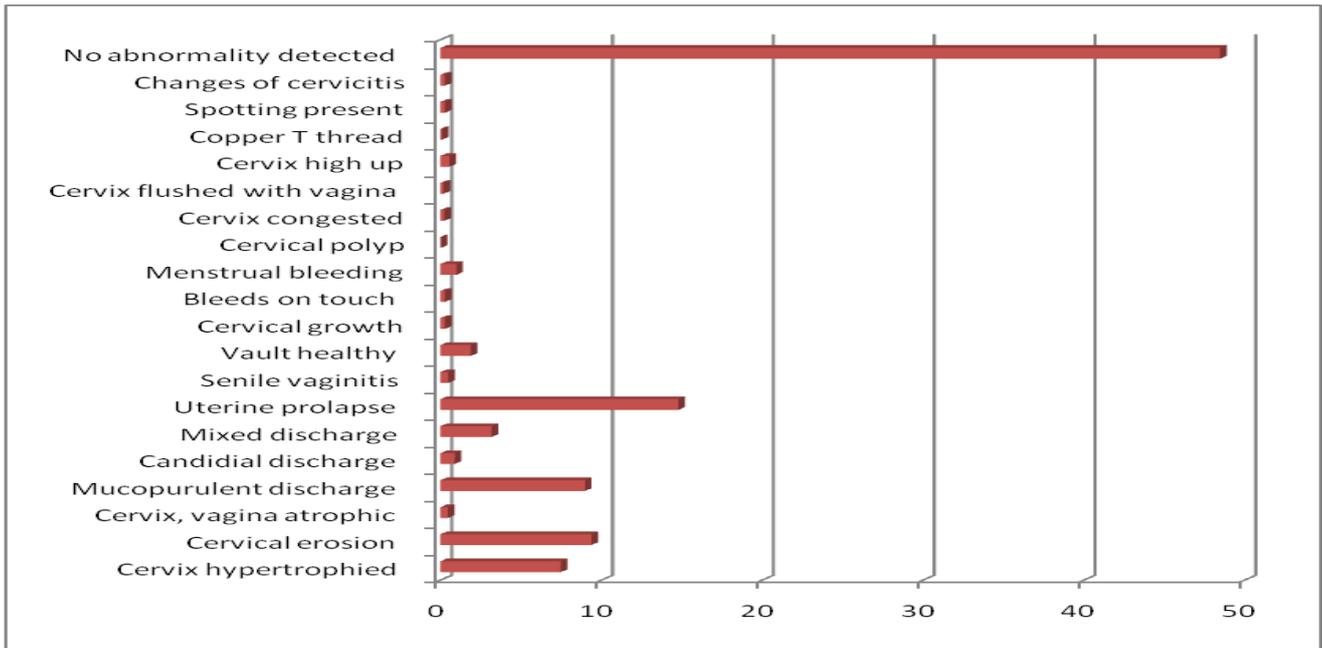
**Figure 4: Distribution of cases according to lesions on per speculum examination.**

**Table 2: Relation between epithelial abnormalities (Premalignant and malignant lesions) and age.**

| Age group | No of cases | ASCUS | ASC-H | LSIL | HSIL | SCC | Atypical endocervical cells: favour neoplastic | Atypical glandular cells: NOS | Overall incidence rate |
|---|---|---|---|---|---|---|---|---|---|
| 11-20 | 21 | - | - | - | - | - | - | - | 0% |
| 21-30 | 429 | 4 (0.9%) | - | 3 (0.7%) | - | - | 1 (0.2%) | - | 1.8% |
| 31-40 | 737 | 12 (1.6%) | 2 (0.3%) | 6 (0.8%) | 4 (0.5%) | 2 (0.3%) | - | 1 (0.1%) | 3.6% |
| 41-50 | 462 | 5 (1.0%) | 2 (0.4%) | 4 (0.9%) | 7 (1.5%) | - | - | - | 3.9% |
| 51-60 | 159 | 3 (1.8%) | - | 3 (1.8%) | 4 (2.5%) | 1 (0.6%) | - | - | 6.7% |
| 61-70 | 79 | 1 (1.3%) | - | 1 (1.3%) | - | 1 (1.3%) | - | - | 3.9% |
| 71-80 | 22 | - | - | 1 (4.5%) | - | 1 (4.5%) | - | - | 9% |
| 81-90 | 5 | 1 (20%) | - | - | - | - | - | - | 20% |
| Total | | 26 | 4 | 18 | 15 | 5 | 1 | 1 | |

**Table 3: Relation between epithelial abnormalities (Premalignant and malignant lesions) and parity.**

| Parity | No of cases | ASCUS | ASC-H | LSIL | HSIL | SCC | Atypical endocervical cells: favour neoplastic | Atypical glandular cells: NOS | Overall incidence rate |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 80 | 2(2.5%) | - | - | - | - | - | - | 2.5% |
| 1 | 175 | - | - | 1(0.6%) | 2(1.1%) | - | - | - | 1.7% |
| 2 | 711 | 11(1.5%) | 1(0.1%) | 7(0.9%) | 3(0.4%) | 3(0.4%) | 1(0.1%) | 1(0.1%) | 3.5% |
| 3 | 536 | 6(1.1%) | 2(0.4%) | 8(1.5%) | 5(0.9%) | - | - | - | 3.9% |
| 4 | 226 | 6(2.6%) | - | 2(0.9%) | 2(0.9%) | - | - | - | 4.4% |
| 5 | 107 | 1(0.8%) | - | - | 2(1.9%) | 2(1.9%) | - | - | 4.6% |
| 6 | 44 | - | - | - | - | - | - | - | 0% |
| 7 | 22 | - | - | - | 1(4.5%) | - | - | - | 4.5% |
| ≥8 | 13 | - | 1(7.7%) | - | - | - | - | - | 7.7% |
| Total | 1914 | 26 | 4 | 18 | 15 | 5 | 1 | 1 | |

**Table 4: Relation between epithelial abnormalities (Premalignant and malignant lesions) and symptoms.**

| Symptoms | No of cases | ASCUS | ASC-H | LSIL | HSIL | SCC | Atypical endocervical cells: favour neoplastic | Atypical glandular cells:NOS | Total cases |
|---|---|---|---|---|---|---|---|---|---|
| Something coming out p/v | 262 | - | 1(0.4%) | 3(1.1%) | 2(0.8%) | 3(1.1%) | - | - | 9(3.4%) |
| Abdominal pain | 605 | 11(1.8%) | 1(0.2%) | 7(1.1%) | 4(0.6%) | 1(0.2%) | 1(0.2%) | - | 25(4.1%) |
| Discharge p/v | 310 | 2(0.6%) | 1(0.3%) | 4(1.3%) | 2(0.6%) | 1(0.3%) | - | 1(0.3%) | 11(3.4%) |
| Amenorrhea | 107 | 2(1.9%) | 1(0.9%) | 1(0.9%) | - | - | - | - | 4(3.7%) |
| Bleeding p/v | 39 | - | - | - | 1(2.5%) | - | - | - | 1(2.5%) |
| Burning micturation | 66 | 2(3.0%) | - | - | - | - | - | - | 2(3.0%) |
| Dys-menorrhea | 32 | - | - | 1(3.1%) | - | - | - | - | 1(3.1%) |
| Irregular menstruation | 93 | 3(3.2%) | - | - | 1(1.1%) | - | - | - | 4(4.3%) |
| Menorrhagia | 157 | 5(3.2%) | - | 1(0.6%) | 3(1.9%) | - | - | - | 9(5.7%) |
| Polymenorrhea | 45 | 1(2.2%) | - | 1(2.2%) | 1(2.2%) | - | - | - | 3(6.6%) |
| Postmenopausal bleeding | 11 | - | - | - | 1(9.1%) | - | - | - | 1(9.1%) |
| Others (Abdominal distension, urinary incontenence, etc | 75 | - | - | - | - | - | - | - | 0% |
| Asymptomatic cases | 112 | - | - | - | - | - | - | - | 0% |
| Total | 1914 | 26 | 4 | 18 | 15 | 5 | 1 | 1 | |

**Table 5: Relation between epithelial abnormalities (Premalignant and malignant lesions) and lesions on p/s examination.**

| Symptoms | No of cases | ASCUS | ASC-H | LSIL | HSIL | SCC | Atypical endocervical cells: favour neoplastic | Atypical glandular cells: NOS | Total cases |
|---|---|---|---|---|---|---|---|---|---|
| Cervix hypertrophied | 144 | 3(2.1%) | - | - | 1(0.7%) | - | 1(0.7%) | - | 5(3.5%) |
| Cervical erosion | 181 | 5(2.7%) | 1(0.5%) | 3(1.6%) | 4(2.2%) | - | - | - | 13(7.0%) |
| Mucopurulent discharg | 173 | 4(2.3%) | 1(0.6%) | 3(1.7%) | 1(0.6%) | - | - | - | 9(5.2%) |
| Uterine prolapse | 284 | - | 1(0.3%) | 5(1.7%) | 2(0.7%) | 1(0.3%) | - | - | 9(3.0%) |
| Vault healthy | 37 | 2(5.4%) | - | 1(2.7%) | - | 1(2.7%) | - | - | 4(10.8%) |
| Cervical growth | 6 | - | - | 1(16.7%) | 2(33.3%) | 3(50%) | - | - | 6(100%) |
| Bleed on touch | 6 | - | - | 1(16.7%) | - | - | - | - | 1(16.7%) |
| Changes of Cervicitis | 6 | - | - | - | 1(16.7%) | - | - | - | 1(16.7%) |
| No abnormality detected | 929 | 12(1.3%) | 1(0.1%) | 4(0.4%) | 4(0.4%) | - | - | 1(0.1%) | 22(2.3%) |
| Other findings | 148 | - | - | - | - | - | - | - | 0% |
| Total | 1914 | 26 | 4 | 18 | 15 | 5 | 1 | 1 | |
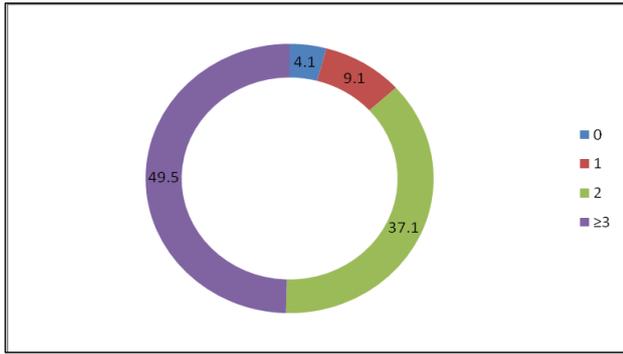
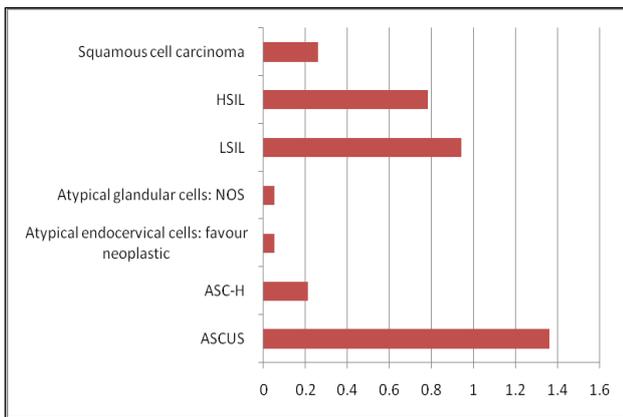**Figure 5: Distribution of cases according to parity.**



**Figure 6: Frequency of epithelial abnormalities.**

## DISCUSSION

The percentage of smears reported as unsatisfactory for evaluation in various studies was 5% in Sherwani et al, 4.5 % in Bhojani et al, 4.1% in Sankarnarayan et al, 3.12% in Ranabhat et al, 3.8% in Saha et al, and 4% in Bodal et al.[5-10] In the present study, percentage of unsatisfactory smears was 4.3%, which was comparable to the study done by Sankarnarayan et al, Bhojani et al, and Bodal et al.[6,7,10] These USFE cases were excluded from the study. The reasons were low squamous cellularity and squamous cell obscured by plenty of polymorphs and RBCs. (more than 75%). Estrogen deficiency causes atrophy of tissue and a retraction of squamocolumnar junction. The epithelium becomes thinner and more easily traumatized. There is a greater incidence of unsatisfactory smear reports and unsatisfactory colposcopy. It is generally preferable to repeat smear after giving oral, transdermal or vaginal estradiol for a period of 7 to 10 days.[11] For all the inadequate smears, a note advising a repeat examination within 2 to 4 months was stated in the report.

In present study, majority of cases were in the 31-40 years age group (38.5%) and were found to be similar with the study of Bhojani et al (34.75%), Nikumbh et al (36.5%), Khasnabish et al (31.9%), Nandini et al (32%), Ranabhat et al (40.2%), Chakraborty et al (33.4%), and

Saha et al (27.1%) Other studies like Sherwani et al, Panickar et al, and Dhaubhadel et al, also showed majority of cases were in the 31-40 years age group comprising 48.12%, 47.09% and 40.86% respectively.[1,4,5,6,8,9,12-15] Second most commonly affected age group was 41-50 years age group (24.1%) which was comparable with the study of Khasnabish et al (28.9%), Nandini et al (30%), Ranabhat et al (24.5%), Chakrabotry et al (28%) and Saha et al (23.3%).[4,9,12,13]

In present study, most common complaint was abdominal pain followed by discharge per vaginum, something coming out, Burning micturition, bleeding per vaginum, postmenopausal bleeding and post-coital bleeding which found similar to the study of Dhaubhadel et al.[15] In other studies (Bisht et al and Nikumbh et al), most common complaint was discharge per vaginum.[1,16] Most common P/S findings in present study was healthy cervix (48.5%) which was comparable with studies done by Khasnabish et al, and Nikumbh et al.[1,12] Majority of cases had a parity-3 or more (49.5%) which was comparable with the study of Dhaubhadel et al (50.85%), Aggarwal et al (47.04%) and Misra et al (72.6%).[15,18]

The frequency of various epithelial abnormalities were 4% in Sania tanweer et al, 4.8% Panickar et al, 3.2% in Gupta et al and 3.08% in Kalyani et al.[14,19,20,21] We noted epithelial abnormalities in 3.65% cases. All the findings are quite comparable with the same of the present study. There were 70 cases with epithelial abnormalities in the present study (3.65%). The frequency of epithelial abnormalities in India varies from 1.87 to 5.9%, as stated in a study by Mulay et al ASCUS was the most commonly seen epithelial abnormality (1.36%) in present study, which was found similar to the study done by Bajpai et al (2%) and Kalyani et al (1.5%).[21-23] However, HSIL was the most common epithelial abnormality in the study of Panickar et al (1.22%) and Neelima et al (3.17%).[14,24] This may be because of the widespread difference in the risk factor and difference in availability of screening program.

LSIL was the next most common abnormality noted with 0.94% in the present study. A similar finding was noted in study of Neelima et al (0.9%), the study of Bajpai (0.6%).[23,24] HSIL was noted with an 0.78%. A similar finding was noted in studies by Bajpai et al (0.6%) and Panickar et al (1.22%).[14,23] The recognition that HSIL is likely to progress to invasive cancer, whereas most low-grade lesions regress spontaneously, raises awareness that eradicating HSIL is critical for cancer prevention. Hence the need to put greater efforts in detecting HSIL at an early stage, before it progresses to invasive cancer. The frequency of invasive cancers was 0.26% in the present study, similar to the findings of Bajpai et al (0.3%).[23] ASC-H was noted with 0.21% in the present study which is comparable to a study by Kalyani et al, which reported an incidence of 0.3%.[21] The age group of 51-60 years showed highest frequency of various epithelial abnormalities (6.7%) which was comparable with the

study of Bukhari et al with 22.5% of epithelial abnormalities in the age group of 50-59 years and the study of Das et al also showed 6.8% of epithelial abnormalities.[3,25] The highest frequency of malignancies was noted in 71-80 years age group (4.5%) which was found similar to the study of Patel et al.[26] There were only 5 cases in the age group of 81-90 years, out of which one was diagnosed as ASCUS (20%).

In various studies on general population females with parity-3 or more having epithelial lesion was 11.2% in Jatashankar et al, 9.1% in Misra et al and 25.1% in present study.[18,27]

Frequency of females with parity-2 having epithelial lesion was 9.2% in Jatashankar et al, 6.0% in Misra et al and 3.7% in present study. Females with parity-1 having epithelial lesion was 7.9% in Jatashankar et al, 5.8% in Misra et al and 1.7% in present study.[18,27]

Nulliparous females having epithelial lesion was 7.2% in Jatashankar et al, 3.9% in Misra et al and 2.5% in present study.[18,27] From above discussion it appears that in all the above study, multiparous women with parity 3 or more had the highest number of epithelial lesions and signifies that they have more risk of having Epithelial lesions. Majority of the cases of dysplasia and carcinoma on cervical cytology had parity of five or more; a finding concordant to the studies of Shankarnarayana et al.[7] Parker et al also commented that seven or more full term pregnancies had a fourfold increase in the risk of developing squamous cell carcinoma of the cervix.[28]

In the present study, the frequency of cervical dysplasia and cervical cancer in women with presenting complaints of lower abdominal pain, discharge per vaginum, Something coming out p/v, post-menopausal bleeding and was 4.1%, 3.4%, 3.4% and 9.1% respectively which was comparable with the study of Gupta et al.[29] There were 986 cases (51.5%) with detectable lesions on per speculum examination. Of these, Cervical growth, hypertrophied cervix, cervical erosion, Mucopurulent discharge, Uterine prolapse were highly associated with epithelial abnormalities. Similar findings were observed by Reddy et al, and Nikumbh et al.[1]

Majority of the smears (96.3%) were reported Negative for intraepithelial lesion or malignancy. The findings were comparable to those observed by Mulay et al, Bhavani et al, Das et al and Gupta et al.[22,25,29,31] Various infectious lesions were also comparable with other studies. In present study, bacterial vaginosis was the most common infectious lesion (23.6%) which was comparable with the study of Malpani et al and Ranabhat et al.[8,32]

Viral changes were seen in 0.4% in present study which was comparable with the study of Nikumbh et al.[1] and the study of Ranabhat et al.[8] Follicular cervicitis were seen in 0.1% in present study which was comparable with the study of Mulay et al.[22] Mixed infection were seen in 2%

in Mulay et al and 0.47 % in Ranabhat et al, whereas 0.43% in present study.[8,22]

Majority of inflammatory smears were found in 31-40 years age group (35.5%), followed by 21-30 years age group (29.5%). The present study findings were comparable with the study of Gidwani et al, Bhojani et al and Malpani et al.[6,32,33] Percentage of atrophic smear reported in studies on general population was 7.3% in Shoaib et al and 6.9% in Mulay et al.[22] In present study, it was 5.3%. The percentage of atrophic smear on different study was quite comparable. In present study, total 38 cases of squamous intraepithelial lesion and squamous cell carcinoma were detected, out of which 76% cases did not use any contraception which was comparable with the study of Sania et al (50%).[19] All 5 cases of SCC were detected in women using no contraception in present study. The overall observation suggests that the higher frequency of SIL and SCC was found in patients not using contraception.

## CONCLUSION

The present study emphasised the importance of Pap smear screening for early detection of premalignant and malignant lesions of cervix. By proper implementation of Pap screening, the incidence of invasive cervical malignancy can be prevented. The need of the our is sensitisation of the community and the fraternity as to how to prevent cervical cancer by using simple test of Pap smear cytodiagnosis. As majority of the patients in India belong to poor economic status and lack awareness about prevention by screening, a government supported free screening can go a long way in combating this highly prevalent malignant disease of women.

We can develop a cost effective screening method by training medical and paramedical staff stating from primary health centre level up to the highest level. Pap smears can be easily taken and evaluated through a chain built between the primary health care unit and District hospital and laboratory and is easily accepted by the population served. It should be subsequently followed with Human papilloma virus deoxyribonucleic acid (HPV-DNA) testing at higher centers. Use Bethesda system, 2014 for cytological reporting of cervical PAP smears for uniformity of reporting process. Conventional Pap smears are required not only for the diagnosis and management of the malignant lesions but it is also helpful in identifying the infectious etiologies and treatment in developing countries. Classification of cervical PAP smear cytology based on Bethesda terminology revealed it is a useful cost effective, screening tool for cervical lesions. According to latest pap screening guidelines, screening should be started at age 21 and followed according to recommendation. Negative for intraepithelial lesion (NILM) was mostly the predominant cytological finding of PAP smear study. Most of the screened patients in present study were in the third and fourth decades of life. This study shows relatively high frequency of epithelial abnormality with increasing age,

parity, women with clinical lesions on per speculum findings. Malignancy was more common in seventh decade and intraepithelial lesions/dysplasia was seen mostly in fifth decade. Inflammatory lesions were more common in younger age group. Pap smear significantly correlates with cervical histology as per this study. Community needs to be enlightened about pap screening test through diffuse educational activities. Organized screening with proper follow up and infrastructure improvement with the education about prevention is better than cure should be the first goal of screening with Pap to prevent the cervical cancer in the developing countries. Pap smear happens to be an economical, safe and pragmatic diagnostic tool for early detection of cervical cancer. Active effort must be carried out to establish cervical pap smear as a routine screening procedure.

The main strength of the present study was the large sample size. These tests are routinely done so cost and efforts of additional unnecessary work were minimized. Pap smears were classified according to latest classification system. The Bethesda system 2014 to maintain uniformity of interpretation of reports

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