

## Research Article

# Study of cervical pap smears in a tertiary care hospital of south Gujarat, India

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**Received:** 27 November 2015

**Revised:** 01 December 2015

**Accepted:** 18 December 2015

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### ABSTRACT

**Background:** In India cervical cancer is the leading cause of morbidity and mortality. Cancer of cervix is preventable, and can be diagnosed at the pre-malignant/pre-invasive stage with adequate and repetitive cytological screening by Papanicolaou (Pap) smears.

**Methods:** The prospective study includes total 1425 patients who were presented with various gynecological problems. Samples were taken and prepared smear were stained with PAP stain. Reporting was carried out by two independent cytopathologist as per Bethesda system.

**Results:** Total 1425 patients were screened; there were 1034 (72.56%) abnormal Pap smears, with 354 (24.84%) normal cases and 37 (2.59%) unsatisfactory or inadequate samples. Total 27 (1.89%) cases showed epithelial cell abnormalities. ASCUS was the most commonly found (40.74%) epithelial cell abnormality out of 27 cases.

**Conclusions:** Incidence of invasive cervical malignancy can be prevented if Pap screening program is effectively implemented in target population.

**Keywords:** Pap smear, Epithelial cell abnormality, ASCUS

### INTRODUCTION

Cancer of the cervix is a global health problem and it is a leading cause of mortality and morbidity among women worldwide. Every year in India, 122,844 women are diagnosed with cervical cancer and 67,477 die from the disease.<sup>1</sup> Cervical cancer is the second most common cancer in women aged 15-44 years. India also has the highest age standardized incidence of cervical cancer in South Asia Bangladesh, Iran.<sup>1</sup>

Cancer of cervix is readily preventable, by early detection and appropriate timely treatment of its precursor lesions by simple Pap screening test. But, women usually present to the clinic only when they have

symptoms, such as pain, discharge, and/or abnormal bleeding.<sup>2</sup>

Cervical epithelial cell abnormalities in the Pap smear represents a spectrum of intraepithelial lesions that lie along the pathway, from mild-to-severe dysplasia to invasive cancer.<sup>3</sup> Though Pap smear is a routine screening test, the overall sensitivity in detection of high grade squamous intraepithelial lesion (HSIL) is 70 - 80%.<sup>4</sup> The Bethesda System (TBS) for reporting the results of cervical cytology was developed as a uniform system of terminology that could provide clear guidance for clinical management.

The present study is intended to evaluate the pattern of cervical Pap smear cytology at a tertiary hospital and to correlate it with clinical findings.

**METHODS**

The prospective study was carried out at Government Medical College and New Civil hospital, Surat, Gujarat, India during January 2012 to December 2012, total 1425 patients were screened. The patients were in the age range of 19-70 years, having complaints like vaginal discharge, bleeding per vagina or something coming out per vagina, post-coital bleeding, intermenstrual bleeding, and pain in lower abdomen. History and symptoms along with parity were recorded. Smears were taken by trained technician using modified Ayres wooden spatula which was inserted and rotated 360 over cervix. Both ectocervix and endocervix were sampled. The cellular material obtained on the spatula and cyto brush was quickly smeared on a clean glass slide, labeled, fixed in 95% ethyl alcohol immediately and subsequently stained by Pap stain. After staining, slides were mounted with DPX (Distrene dibutyl phthalate xylene), screened and reported by two cytopathologist under light microscope according to the 2001 Bethesda system.

**RESULTS**

Total 1425 cervico-vaginal smears studied during January 2012 to December 2012 on patients, ranging from 19 to 70 years.

Cytological findings broadly classified into unsatisfactory smears, normal and abnormal smears. There were 1034 (72.56%) abnormal Pap smears (benign cellular changes of inflammation as well as Epithelial Cell Abnormalities (ECA), with 354(24.84%) normal cases and 37 (2.59%) unsatisfactory or inadequate samples.

The age range of patients with epithelial cell abnormality was 25 to 70 years and the mean age was 43.7±11.6 years. They represented 2.61% of abnormal Pap smears and 1.89% of total smears taken.

Total 735 (51.57%) showed inflammatory lesion, 19 (1.33%) showed atrophy, 11 (0.77%) showed ASCUS, 5 (0.35%) showed ASC-H, 5(0.35%) showed HSIL, 2 (0.14%) showed SCC, 4 (0.28%) AGUS, 224 (15.71%) showed metaplasia, 2 (0.14%) had radiation changes.

**Table 1: Cytological findings**

Diagnosis		No. of cases	Percentage	
NILM	Normal	354	21.19%	
	Inflammatory	Non-specific	735	51.57%
		Candida	53	3.71%
		Trichomonas	11	0.77%
	Reactive	382	26.80%	
Metaplasia	224	15.71%		
Atrophy		19	1.33%	
Radiation		2	0.14%	
ASCUS		11	0.77%	
ASC-H		5	0.35%	
HSIL		5	0.35%	
SCC		2	0.14%	
AGUS		4	0.28%	

**DISCUSSION**

Cancers of uterine cervix and breast are the leading malignancies seen in females of India. There should be an effective mass screening program aimed at specific age group for detecting precancerous condition before they progress to invasive cancers.<sup>5,6</sup> Cervical cytology is currently widely used as the most effective cancer screening modality. Objective data from hospital-based studies are required in order to detect the efficiency of the screening test. This study contributes to assessing current levels of cervical screening in the tertiary teaching hospital in Surat, Gujarat, India.

In our study, the mean age of patients with abnormal smears was 43.7 years. Similar finding was detected by other studies.<sup>8</sup> This study determines 354 cases (21.29%) of normal findings, inflammatory lesions in 799 cases (56.04%).

Our study showed that there were 98.10% benign and inflammatory and 1.90% were premalignant and malignant lesion, out of which premalignant lesions 55.55% that were ASCUS and AGUS. The Epithelial Cell Abnormality (ECA) rate, that is the total of ASCUS, ASC-H, LSIL, HSIL, AGUS and carcinoma diagnosis varied between 1.5 and 12.60% in various studies.<sup>9,10</sup>

Our study revealed ASCUS (0.77%) to be the most common epithelial cell abnormality, most of found in age group of 30-50 years of age. Similar results were obtained in other studies which also concluded ASCUS to be the most common epithelial cell abnormality.<sup>10,11</sup> ASCUS progresses to LSIL, HSIL and SCC. AGUS progresses to adenocarcinoma.<sup>6,11</sup>

Edelman et al, studied Pap smears from 29295 females over a period of one year and the Pap smear abnormalities were as follows: 9.9% ASC-US, 2.5% LSIL, 0.6% HSIL, and 0.2% invasive cancer.<sup>12</sup> Study by Banik U revealed the following scenario: 0.18% ASC-US, 0.12% Atypical glandular cells (AGC), 6.36% LSIL, 1.18% HSIL and 0.35% malignancy. In our study shows ASCUS 0.77%, ASC-H 0.35%, HSIL 0.35%, SCC 0.14% and AGUS 0.28%.

One of the significant discrepancies between our study and the previously published data from other countries is the higher rate of ASC-US and lower rate of LSIL. We assume that as the women included in our study were routinely screened and/or re-screened, they presented with an early form of cytological interpretation in the cervical smear, and thus, ASCUS rate was higher. Most common age to develop carcinoma cervix is between 40 and 50 years and the precursor lesions occur 5 - 10 years prior to developing invasive cancer. Various screening test for cervical cancer like Pap smear, liquid Pap cytology, automated cervical screening techniques, visual inspection of cervix after Lugol's Iodine and acetic acid application, speculoscopy, cervicography should be started for early detection of premalignant lesions.

## CONCLUSION

This study emphasized the importance of Pap smears screening for early detection of premalignant and malignant lesions of cervix. Larger studies are required to estimate the pattern of cervical cytological abnormalities along with detection of common HPV strains in cervical cancer in Indian population. Pap smear examination should begin at 30 years. By proper implementation of Pap screening program, incidence of invasive cervical malignancy can be prevented due to early detection of cervical premalignant lesions.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: The study was approved by the Institutional Ethics Committee*

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**Cite this article as:** Tailor HJ, Patel RD, Patel PR, Bhagat VM. Study of cervical pap smears in a tertiary care hospital of South Gujarat, India. Int J Res Med Sci 2016;4:286-8.