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SPECTRUM OF FEMALE CERVICAL LESIONS IN A TERTIARY CARE CENTRE OF WESTERN GUJARAT- SCOPE FOR REDUCING THE MORTALITY - A RETROSPECTIVE STUDY OF 1 YEAR DURATION.

Pathology

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ABSTRACT

Background: Cancer of the cervix is a global health problem and Pap smear (Papanicolaou smears) is an important screening tool, which has proven to be highly effective in reducing the number of cases and the mortality from cervical carcinoma. Any abnormality detected in Pap smear has to be confirmed with cervical biopsy, which is the gold standard for diagnosing the lesions of the cervix. **Objectives:** To study the correlation of cytological Pap smear testing with cervical biopsy in detecting the intraepithelial lesions / malignancy of cervix in our setting. **Materials And Methods:** This study included 1268consecutive cervical cytology cases and their cervical biopsies collected over a period of one year. The cytologically abnormal cases were listed and a thorough search was made for their cervical biopsy. The histopathological diagnosis of the corresponding cervical biopsies (if done) was also listed and compared for concordance. **Results:** There were total of 1268 cases of Pap smear done during the study period out of which there were 88 cytologically abnormal cases. Histopathology reports of the cervical biopsy were available for 47 cases. Out of the 47 cases, 40 cases were concordant. The sensitivity of Pap smear test in our setting was found to be 85.11 %. **Conclusion:** Our study revealed a good correlation between Pap smear and cervical biopsy.

KEYWORDS

Cervical cancer, Pap smear, cervical biopsy.

INTRODUCTION:

Cervical cancer is the fourth most common cancer in women. In 2022, an estimated 6,60,000 women were diagnosed with cervical cancer worldwide and about 3,50,000 women died from the disease. In India, an estimated 1,23,97 new cases of cervical cancer and 77,348 deaths annually were reported, making it the second most common cancer in Indian women.

In Gujarat, data shows that cervical cancer mortality increased by 27% in last 10 years.[1]

Most cervical cancer arises from precursor lesions over the course of 10-15 years to progress into cancer. Precursor lesions can be detected with cytological preparations (PAP smears), long before any abnormality is visible on gross inspection. [2]

The Bethesda System (TBS) for reporting the results of cervical cytology was developed that could provide clear guidance for clinical management. [3]

Risk factors for cervical cancer are chronic infection with high-risk HPV 16, 18, 31, 33, 45, 58; immunodeficiency; tobacco smoking; presence of other sexually transmitted diseases and long-term oral contraceptive use.[4]

So, initial screening to begin at 25 years of age regardless of sexual activity & to continue up to the age of 65 years with screening interval every 3 years.

AIMS AND OBJECTIVES:

To study the correlation of various cervical lesions with help of PAP smears and cervical biopsy in a tertiary care teaching hospital.

MATERIALS AND METHODS:

This study include all the Pap smears reported in our department. The cytologically abnormal cases were listed separately including their age at the time of presentation. The reports of cytology and histopathology were compared and the extent of concordance and discordance were measured.

Study Design:

Retrospective observational study.

SETTING:

Department of Pathology.

Study Period:

One Year

Study Population: General population of females.

Inclusion Criteria:

- Females of all age groups.
- All cases presenting with complain of pain, discharge, itching and/or abnormal vaginal bleeding with adequate history & availability of PAP smear slides.

Exclusion Criteria:

- Patient who was a known case of cervical cancer and already on treatment.
- Inadequate or haemorrhagic smears.

Data Collection:

Retrieval of PAP slides and reports from pathology archives.

RESULTS:

- Sensitivity was calculated considering histopathological diagnosis of cervical biopsy as the gold standard.
- Out of the total number of cases collected 88 were cytologically abnormal and their distribution is tabulated here.

Overall incidence of cervical carcinoma in our setting was 6.94% (88 cases).The majority of normal pap cases were seen in younger age group, followed by the middle-aged group.

Table No 1: The Age Wise Distribution Of Various Abnormal Pap Smears (n=88)

Age Group	No. of Abnormal Pap smears	Percentage (%)
20-29	04	4.54
30-39	23	26.14
40-49	27	30.68

50-59	18	20.45
60-69	10	11.36
70-79	05	5.69
80-89	01	1.14
Total	88	100

Above table shows that maximum number of abnormal cases were in the fourth decade followed by third decade.

Table 2: Depicts The Different Categories Of Cytological Abnormalities (n=1268)

Diagnosis	No of patient	Percentage (%)
Negative for intraepithelial malignancy (NILM)	1180	93.06
Atypical squamous cell of undetermined significance (ASCUS)	54	4.25
Low grade squamous intraepithelial lesion (LSIL)	11	0.86
High grade squamous intraepithelial lesion (HSIL)	16	1.28
Atypical squamous cell cannot exclude HSIL(ASC-H)	01	0.08
Atypical glandular cell of undetermined significance (AGUS)	03	0.24
Squamous cell carcinoma(SCC)	02	0.16
Adenocarcinoma	01	0.07
Total	1268	100

The most common epithelial abnormality detected cytologically was ASCUS (4.25%) which was closely followed by HSIL (1.28%).

Out of the 47 total histopathologically detected cases, 19 were classified as CIN I, 14 as CIN II, 06 as CIN III and 08 as malignant lesions (SCC & Adenocarcinoma).

Table No: 3 Cytohistological Correlation Of Cytologically Abnormal Cases (n=88)

Cytology	Total Cases	Cervical Biopsy	Biopsy correlation	Concordance
ASCUS	54	24	9-mild dysplasia 15-chronic cervicitis	24/24 (100%)
LSIL	11	10	2-CIN I 4-chronic cervicitis 4- CIN II (discordance)	06/10 (60%)
HSIL	16	11	4-CIN-II 2-CIN III 2-SCC 3-CIN I (discordance)	08/11 (72.72%)
ASC-H	01	00	00	--
AGUS	03	01	1-adenocarcinoma	01/01(100%)
SCC	02	01	1-SCC	01/01(100%)
Adenoca	01	00	00	--
Total	88	47	40	40/47(85.11%)

There were 11 cases of LSIL for which biopsy was done for 10 cases which were reported as CIN I in 2 cases, 4 cases reported as chronic cervicitis and CIN II in the remaining 4 cases.

There were 16 cases of HSIL diagnosed by Pap smear, out of which 11 underwent biopsy and 4 cases were reported as CIN-II, 2 cases were reported as CIN III, 2 cases were reported assquamous cell carcinoma and remaining 3 cases were reported as CIN I.

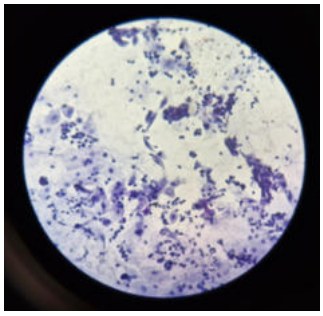

Fig 1: Shows changes of LSIL with mild nuclear hyperchromasia& moderate amount of cytoplasm (pap*40 x)

There were 2 cases of squamous cell carcinoma diagnosed with Pap smear and only one patient underwent cervical biopsy which turned out to be squamous cell carcinoma.

There was only one case of AGUS which turned out to be adenocarcinoma in cervical biopsy.

Fig 2: Shows changes of HSIL with marked nuclear hyperchromasia& scanty cytoplasm (pap*40x)

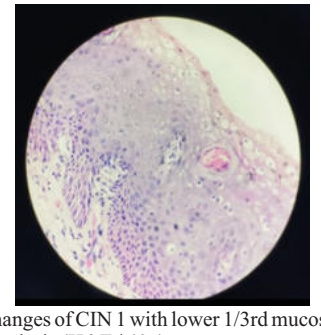

Fig 3: Shows changes of CIN 1 with lower 1/3rd mucosa showing Loss of polarity & dysplasia (H&E *40x)

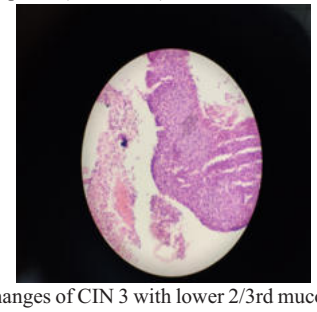

Fig 4: shows changes of CIN 3 with lower 2/3rd mucosa showing loss of polarity & dysplasia (H&E *40x)

DISCUSSION:

Age Distribution:

Our study demonstrated that the maximum number of abnormal cervical cytological cases occurred in the fourth decade of life (40-49 years), which is consistent with the age distribution reported in most comparative studies.

Cytological Abnormality Distribution:

ASCUS:

Our study recorded ASCUS in 4.25% of cases, which represents the higher end of the spectrum when compared to other studies. George an Rao[5]reported 3.8%, Kothari et al found 4.1%, while Gupta et al[10] reported a notably lower rate of 0.52%.

LSIL:

The LSIL diagnosis in our study was 0.86%, which falls within the range reported in literature (0.9-1.5%). Gupta et al reported the highest rate at 1.36%, followed by Kothari et al[6] at 1.5%, while our findings were comparable to Sengul et al[7] (0.9%) and Nayir et al[8] (1.0%).

HSIL:

Our HSIL diagnosis of 1.28% was within the expected range compared to other studies (0.91-2.1%). Nair et al reported the highest rate at 2.1%, while Gupta et al had the lowest at 0.91%.

DIAGNOSTIC ACCURACY AND CONCORDANCE:

Sensitivity Analysis:

The sensitivity of Pap smear testing in our study was 85.11%, which

compares with other studies ranging from 78.9% to 84.5%. The sensitivity achieved in our study was notably higher than George an Rao (78.9%) and Nair et al[9](79.6%), and comparable to Kothari et al (84.5%) and Gupta et al (82.0%).

Cytohistological Concordance:
Our overall concordance rate of 85.11% falls within the acceptable range established by comparative studies (81.3-87.2%). Kothari et al achieved the highest concordance at 87.2%, while Nair et al reported the lowest at 81.3%.

CLINICAL IMPLICATIONS AND QUALITY INDICATORS:
The concordance rate indicates good correlation between cytological interpretation and histopathological confirmation, suggesting appropriate training and standardization of diagnostic criteria.

The age distribution and abnormality rates suggest our study population reflects typical patterns seen in cervical screening programs, enhancing the generalizability of our findings.

STUDY LIMITATIONS AND VARIATIONS:
Variations in HPV prevalence, socioeconomic status, and healthcare accessibility across different regions may influence the spectrum of cervical abnormalities.

Differences in slide preparation techniques, staining protocols, and interpretation criteria may contribute to variability.

CONCLUSIONS:
The higher ASCUS rate in our study, while within the reported range, warrants attention and may benefit from quality assurance measures to ensure optimal diagnostic precision.

When the Pap test is combined with an HPV DNA test, the sensitivity for detection of cervical pathology is increased.Vaccine against HPV DNA can be given to young girls & women to protect them against cervical cancer. (Gardasil &Cervavac).

We had few limitations because HPV DNA test was not available at our center. So, we conclude that combining pap test with colposcopic examination followed by cervical biopsy, HPV DNA test will increase the overall sensitivity & diagnostic accuracy to a much larger extent thus lowering the overall morbidity & mortality by early detection.

It is important that there should be awareness program and educational activities for cervical cancer especially in rural areas.

Thus, we have to strengthen our health services and health-care system to include cervical screening at primary health centres thus reducing the overall morbidity & mortality of Indian women in general & in western Gujarat.

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