DOI: 10.36347/sjams.2017.v05i03.035

Scholars Journal of Applied Medical Sciences (SJAMS) **ISSN 2320-6691 (Online)**
Sch. J. App. Med. Sci., 2017; 5(3C):873-880 **ISSN 2347-954X (Print)**

(An International Publisher for Academic and Scientific Resources)
www.saspublishers.com

Original Research Article

Cyto histopathological Correlation of Pap Smear and Cervical Biopsy in Diagnosis of Cervical Lesions: A Cross Sectional Hospital Based Study

Dr. Ayushi Narain[1], Dr. Bheema Rao[2], Dr. Priavadhana Rajan Prasaad[3], Dr. Hemalatha Ganapathy[4]
Post graduate[1,] Associate Professor [2,] Assistant Professor[3,] Professor[4]
Sree Balaji Medical College, Chromepet, Chennai-44

***Corresponding author**
Dr. Ayushi Narain
Email: ayushi5129@gmail.com

Abstract: Cervical cancer remains an important health problem for women worldwide after breast cancer. Cervical cytology screening is helpful in detecting over 90% of cytological abnormalities and premalignant conditions. This study was conducted to study various types of cervical lesions and to correlate the cytological with histopathological findings. 120 patients who have undergone pap smears and cervical biopsies were included in the study. After fixation and staining, smears were studied .Cervical biopsies were processed routinely and examined under microscope. Detailed history with clinical examination was performed and the findings were correlated. 13.4 % cases were found to have malignancy in the age group of 21 yrs- 45yrs. Rarely it was observed in >70 years of age. Amongst all cytologically diagnosed cases of chronic cervicitis, 56% correlated histopathologically. Various epithelial cell abnormalities detected in cytological studies were ASCUS (10.5%), LSIL (47%), and HSIL (31%). PAP smear test was found to be equally sensitive to histopathological examination for the early detection of different cervical lesions. However, biopsy can be performed if any abnormalities are detected in PAP smear for correlation and confirmation.
Keywords: Pap smear, cyto histopathological, correlation, cervical biopsy, cervical cancer

INTRODUCTION

Cervical cancer is the third most common cancer among women. It is the second most frequent cause of cancer-related death. PAP smear screening done every two years starting at the age of 21yrs offers the best chance of preventing cervical cancer. The use of the cervical smear (Papanicolaou/Pap) as a screening tool has significantly reduced the incidence of cervical cancer. Cervical smears include cells exfoliated from body of the uterus. (Even at times from fallopian tubes and ovaries).Cervical biopsy is usually done after an abnormality has been found during a routine pelvic exam or Pap smear. Cyto histopathological correlation of Pap smear is a widely accepted method of internal quality assurance and helps in the analysis of various factors leading to discrepant diagnosis. With the above view, the present study has been carried out to evaluate the cyto histopathological correlation of the various cervical lesions. The concept of preinvasive disease of the cervix was first introduced by Papanicolaou in 1947 and since then, cervical cytological testing has become the standard screening test for cervical neoplasm. Cervical cytological screening is designed to detect over 90% of cytological abnormalities. It has also been seen that most cervical cancers can be diagnosed at the preinvasive stage with adequate and repetitive cervical cytological screening.

MATERIALS AND METHODS

Patients who underwent pap smear examination and a subsequent cervical biopsy (including hysterectomy specimens) were included in the study. Conventional Pap smears were taken by the gynaecologists at the squamocolumnar junction using Ayer's spatula in clockwise direction for 360°. Biopsy was taken from cervix mainly in cases with epithelial cell abnormality on pap smears and badly eroded cervix. They were fixed in 10% formalin, routinely processed and stained with haematoxylin and eosin. The pap smears were reported by "The revised Bethesda System of Classification (2001 TBS)" and histopathology "WHO classification of tumours of

uterine cervix (2003)". The cytological findings were correlated with histopathological findings.

RESULTS

The study population had women in the age group of 21-70 years. Overall cytological diagnosis in this study are shown in Image.1

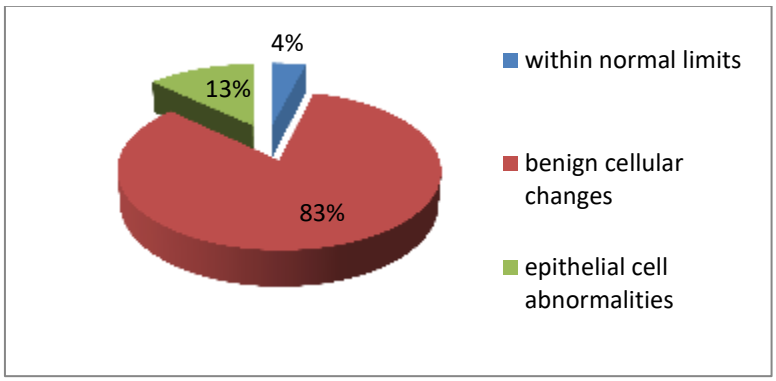

Image 1: Overall cytological diagnosis

Among five cases of cytologically normal smears, histopathology showed features of chronic cervicitis in three cases. Distribution of smears with benign findings is shown in Table 1.

Table 1: Distribution of smears with benign findings n= 108

Diagnosis	Percentage
Chronic cervicitis	77%
Chronic cervicitis with squamous metaplasia	17.5%
Chronic cervicitis with Trichomonas vaginalis infestation	3.7%
Atrophic smear	2%
TOTAL	108

In this study, 77% cases showed features of chronic cervicitis, in which the smears showed admixture of superficial and intermediate squamous epithelial cells, in an inflammatory background consisting of neutrophils, lymphocytes, and macrophages. Lactobacilli were seen in some cases. In four smears there were Trichomonas vaginalis organisms which had pear-shaped appearance with an eccentric, slightly basophilic nucleus and in some degenerated forms were also seen. Correlation of histopathological diagnosis with cytologically diagnosed inflammatory smears shown in Image 2.

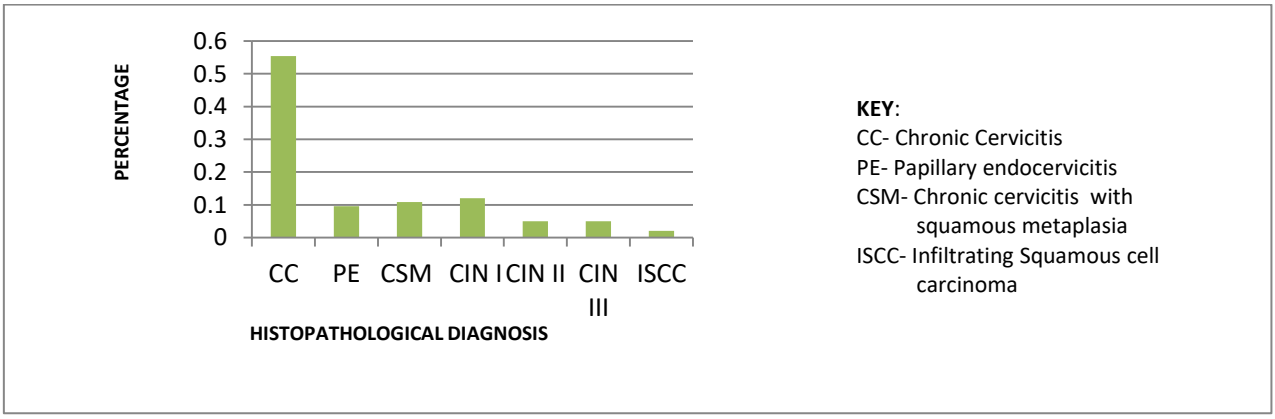

Image 2: Correlation of histopathological diagnosis with cytologically diagnosed inflammatory smears

In cytologically diagnosed cases of chronic cervicitis with squamous metaplasia, the additional features were presence of immature, maturing and mature metaplastic squamous cells. Histopathological diagnoses in cytologically diagnosed cases of chronic cervicitis with squamous metaplasia are shown in Table 2.

Table 2: Histopathological diagnoses in cytologically diagnosed cases of chronic cervicitis with squamous metaplasia

S.No.	Diagnosis	Percentage
1.	Chronic cervicitis	37%
2.	Mild dysplasia/CIN I	52.6%
3.	Infiltrating Squamous cell carcinoma	10.5%

Smears showing polypoidal and papillary processes lined by columnar endocervical cells, accompanied by inflammatory infiltrate, were diagnosed as polypoidal (papillary) endo cervicitis. In our study Epithelial cell abnormalities were seen in 19 cases, mentioned in Table. 3

Table 3: Epithelial cell abnormalities by cytology

Diagnosis	No. of cases	%
ASCUS	02	10.5
Chronic cervicitis LSIL	09	47
Chronic cervicitis HSIL	06	31
Squamous cell carcinoma	02	10.5

Cervical smears in LSIL showedclusters of intermediate cells and parabasal cells many of them exhibiting nuclear pleomorphism in a dense acute inflammatory background (Fig. 2). Histopathological diagnoses in cytologically diagnosed cases of LSIL showed (Fig.4). Smears of HSIL showed clusters of parabasal cells, many of them exhibiting nucleomegaly and nuclear pleomorphism in a dense acute inflammatory background. (Fig 3). Histopathological diagnoses in cytologically diagnosed cases of HSIL showed (Fig. 5). Comparison of PAP smear with biopsy reports is shown in Table 4.

Table 4: Comparison of PAP smear with biopsy reports

Diagnosis	Pap smear	Biopsy
Chronic cervicitis	11	Chronic cervicitis-9
		Mild dysplasia-2
Mild dysplasia(LSIL)	09	Chronic cervicitis-2
		Mild dysplasia-7
Moderate dysplasia	03	Mild dysplasia-1
		Moderate dysplasia-2
Severe dysplasia	02	Chronic cervicitis-1
		Severe dysplasia-1
Squamous cell carcinoma	01	Squamous cell carcinoma

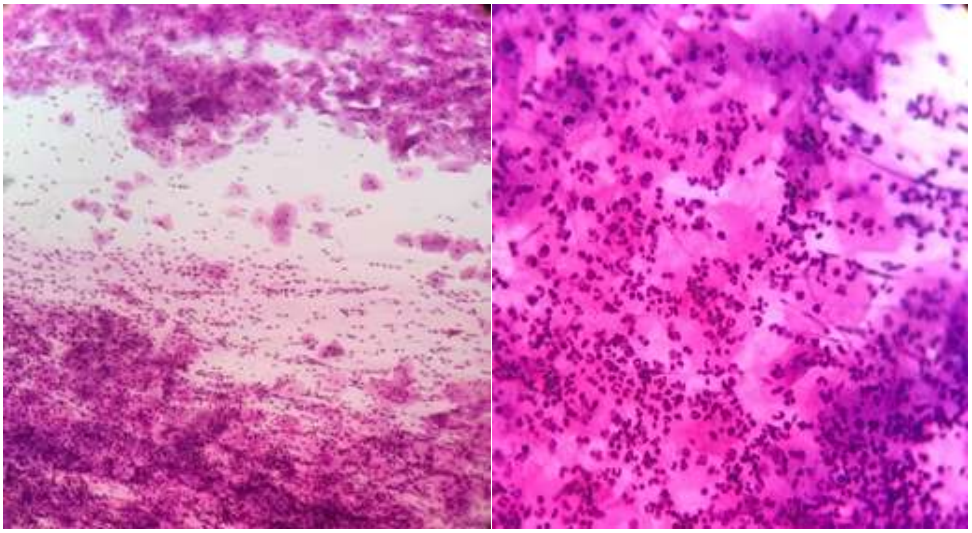

Fig 1: Scanner view: Smear showing Chronic cervicitis, 40x: Smears showing features of Chronic cervicitis

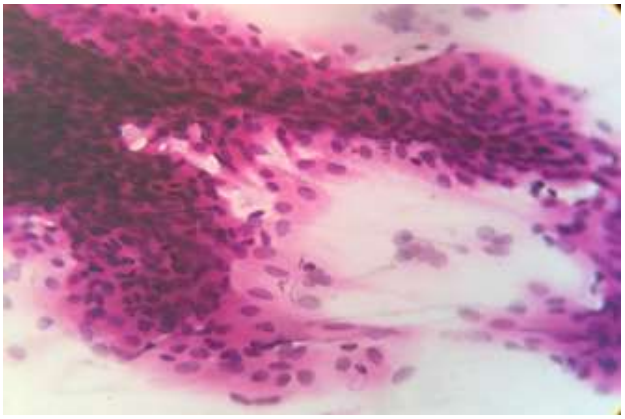

Fig 2: Cytological smears showing pictures of LSIL

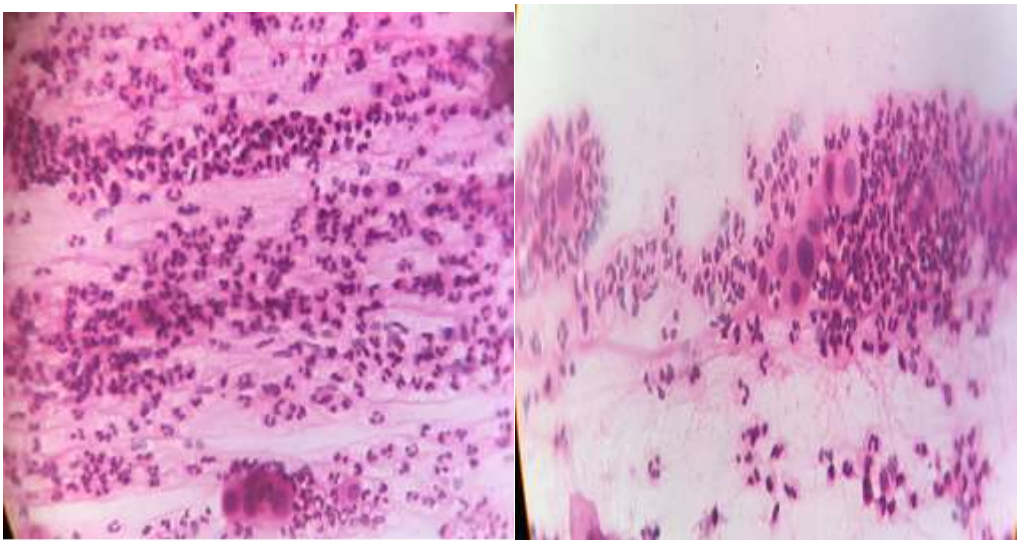

Fig 3: Cytological smears showing features of HSIL

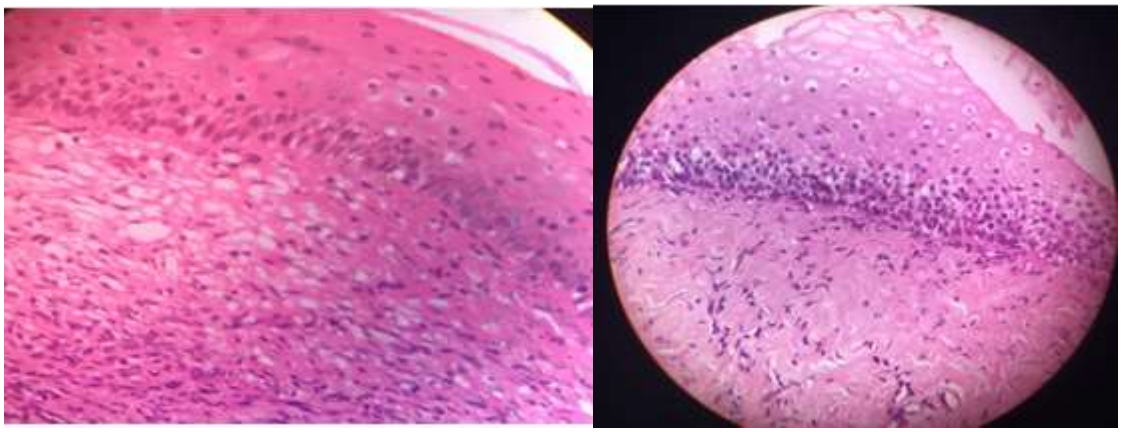

Fig 4: Sections showing features of mild dysplasia (CIN I), Section shows fragments of stratified squamous epithelium overlying cervical stroma with inflammatory cell collections. Focal basal cell hyperplasia and mild dysplastic changes are seen

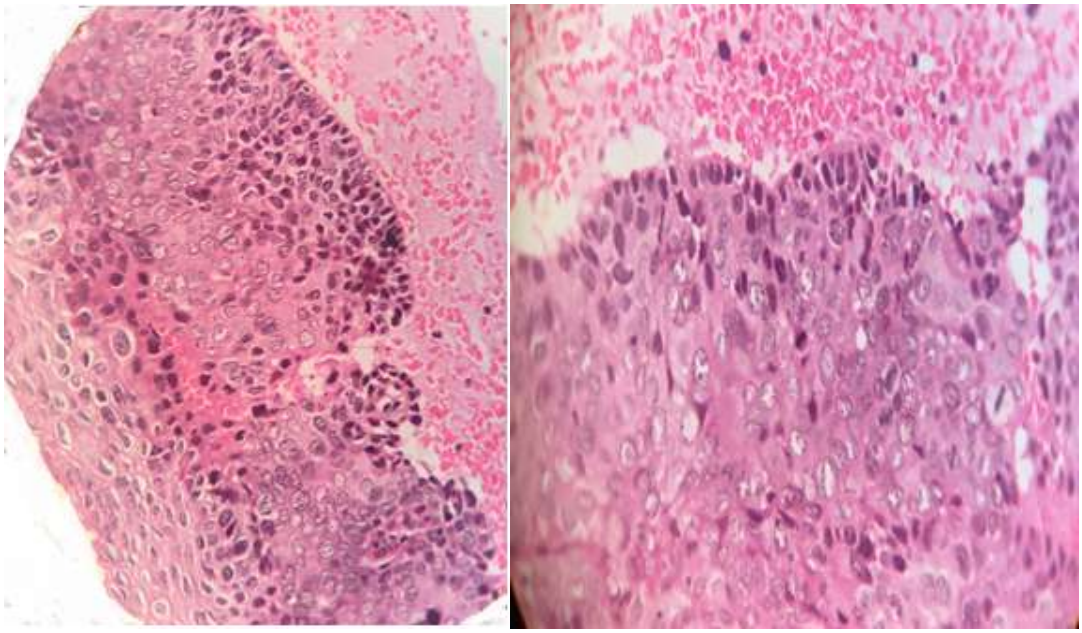

Fig 5: Sections showing features of severe dysplasia (CIN III), Sections show fragments of stratified squamous epithelium with loss of polarity, pleomorphic cells with enlarged nuclei. Many of them showing mitotic figures

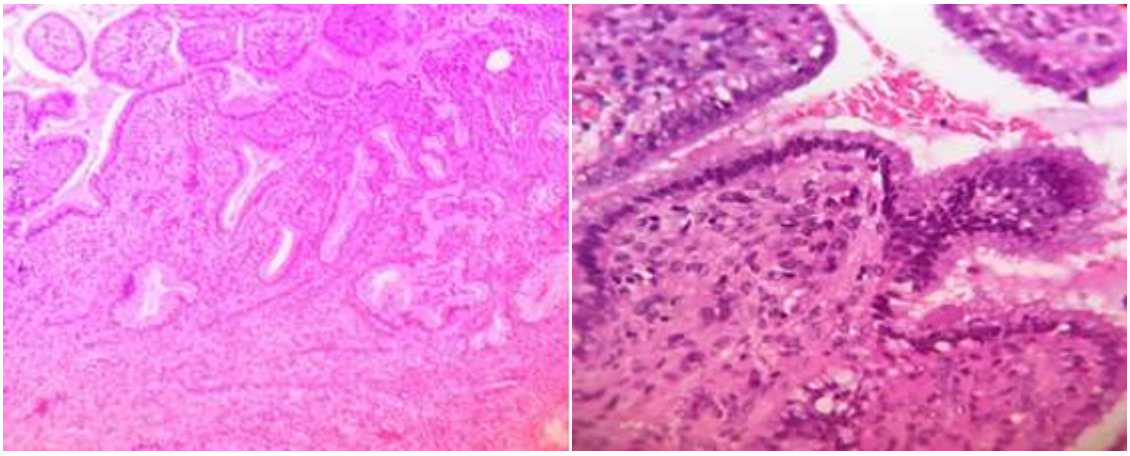

Fig 6: Scanner view showing papillary architecture

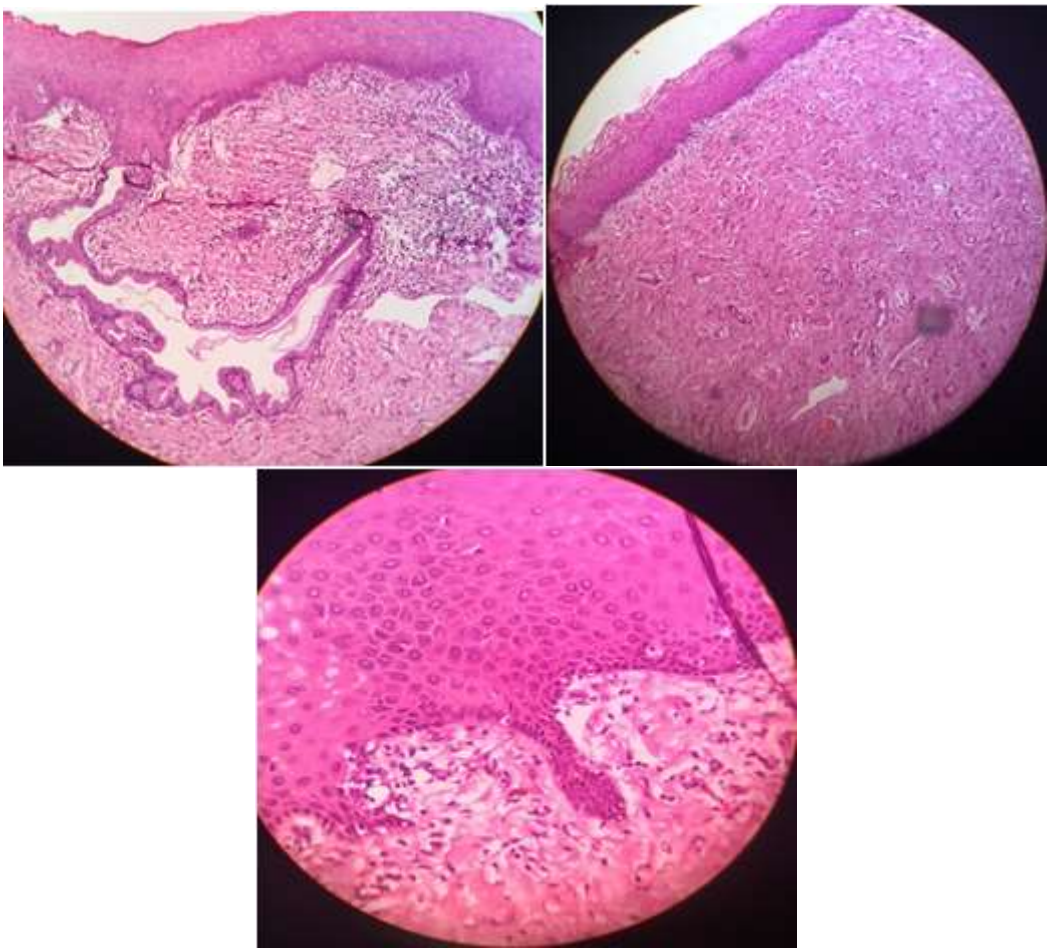

Fig 7: Section showing features of squamous metaplasia, Sections showing stratified squamous epithelium and endocervical epithelium with squamous metaplasia of endocervical glands overlying cervical stroma with inflammatory cell collections

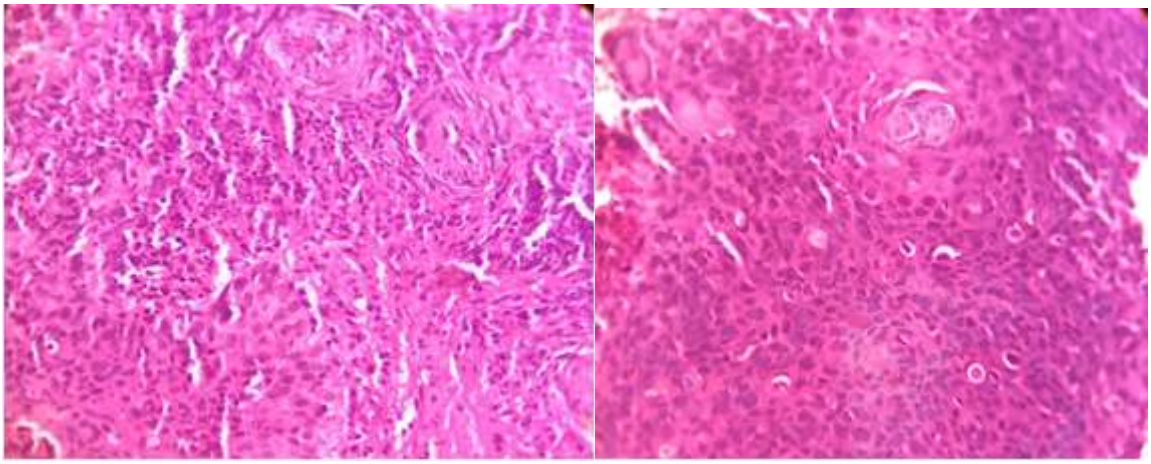

Fig 8: Sections showing features of Squamous cell carcinoma, Section shows cellular neoplasm composed of islands and sheets of malignant squamous epithelial cells with hyperchromatic and pleomorphic nuclei infiltrating the stroma

DISCUSSION

The incidence of cervical carcinoma is incredibly high. Almost 80% of all its cases are attributed to developing countries, because of lack of proper knowledge , long intervals between tests and non-existent prevention programmes .[2]. It is known that pap smear has been the most effective cancer screening test ever introduced. This screening test has helped achieve a reduction in the death rate of more than 70% for a prevalent cancer [1]. Carcinoma cervix is thought to be an ideal gynaecological malignancy for screening as it fulfils both test and disease criteria for screening. Because of its long latent phase, it can be detected as identifiable and treatable premalignant lesions which precede the invasive disease and it is more than worth its cost [3]. The original terminology of dysplasia and carcinoma in situ (WHO) classification was replaced by the cervical intraepithelial neoplasia (CIN terminology) proposed by Richart [**5]** .Recently the Bethesda system of terminology has been introduced to sub-classify the lesions into grades: high grade and low grade Squamous Intraepithelial Lesions (SIL) [13]. The terminologies are compared in the table below:

WHO system(dysplasia terminology)	CIN terminology	Bethesda terminology
Mild dysplasia	CIN I	Low grade SIL
Moderate dysplasia	CIN II	High grade SIL
Severe dysplasia	CIN III	High grade SIL
Carcinoma in situ	CIN III	High grade SIL

13.4 % cases were found to have malignancy in the age group of 21 yrs- 45yrs. Rarely it was observed in >70 years of age. Amongst all cytologically diagnosed cases of chronic cervicitis, 56% correlated histopathologically, 9.6% were diagnosed as papillary endo cervicitis, 10.8% were diagnosed as chronic cervicitis with squamous metaplasia, 12% were diagnosed as CIN I, 5% were diagnosed as CIN II, 5% were diagnosed as CIN III, 2 % were diagnosed as squamous cell carcinoma. Amongst all cytologically diagnosed cases of chronic cervicitis with squamous metaplasia 37% were diagnosed as chronic cervicitis, 52.6 % were diagnosed as CIN I and 10.5% cases were diagnosed as Squamous cell carcinoma. Various epithelial cell abnormalities detected in cytological studies were ASCUS (10.5%), LSIL (47%), and HSIL (31%).

Biopsy report is considered as the gold standard provided biopsy is taken from the appropriate site. Pap smear test is inexpensive, non-invasive and closely as sensitive, specific and effective as biopsy, however, biopsy can be performed if any abnormalities are detected in pap smear. The limitation of the study was for a time period of 2 years. Liquid based pap cytology test was not performed.

CONCLUSION

To conclude, pap smear can be used to detect most common problem of infection in cervical region.

Screening for cancer is an important aspect. PAP smear is less invasive and simple procedure to perform. It is cheap and affordable to detect early onset abnormalities on regular basis. Cervical carcinoma does not develop suddenly from normal epithelium. It is presented by a spectrum of intraepithelial neoplastic changes which are precancerous lesions and were termed as cervical intraepithelial lesion. Pap smear test was found to be equally sensitive to histopathological examination for the early detection of different cervical lesions. However, it is advised to perform biopsy if any abnormalities are detected in pap smear for correlation and confirmation.

REFERENCES

1. Pradhan B, Pradhan SB, Mital VP. Correlation of PAP smear findings with clinical findings and cervical biopsy.
2. Amir Asotic, SuadaTaric and JasminaAsotic. Correlation of cervical smear and Pathohistological findings. Journal of the academy of medical sciences in Bosnia and Herzegovina. Med Arch. 2014 Apr; 68(2): 106-109
3. Bodal VK, Brar RK, Bal MS, Kaur B. Pap smear and histopathological study of cervical lesions. Global journal of medical research: C Microbiiology and Pathology. 2014; 14.
4. Chaudhri P, Patel M. Pap Smear and Histopathological Correlation: is it Worth Screening Women for Cervical Lesions? International Journal of Scientific Research. 2016 Jul 18; 5(6).
5. Richart RM: National history of cervical intraepithelial neoplasia. Clinical ObstetGynecol 1968; 10:748-749
6. Bodal VK, Brar RK, Bal MS, Kaur B, Kaur S, Suri AK. Correlation of Pap smear with histopathological findings in malignant and non-malignant lesions of cervix. Global Journal of Medical Research. 2014; 14:19-24.
7. Biswas LN, Manna B, Maiti PK, Sengupta S. Sexual risk factors for cervical cancer among rural Indian women: a case-control study. International journal of epidemiology. 1997 Jun 1; 26(3):491-5.
8. Saha R, Thapa M. Correlation of cervical cytology with cervical histology.
9. A cyto-histopathological correlation study of lesions of uterine cervix 10.5958/2394-6792.2016.00055.7
10. Tengli MB, Ahmed MM. A cyto-histopathological correlation study of lesions of uterine cervix. Indian Journal of Pathology and Oncology. 2016; 3(2):285-92.
11. Jain V, Vyas AS. Cervical neoplasia-cyto-histological correlation (Bethesda system) A study of 276 cases. Journal of Cytology & Histology. 2010; 1(1):1-3.
12. Eke N, Adinma BD: Clinical presentation of cervical cancer. Journal of Obst and Gyne. 2000; 20-3.
13. Richart RM. A modified terminology for cervical intraepithelial neoplasia. Obstetrics & Gynecology. 1990 Jan 1; 75(1):131-3.