Original Research Paper

Pathology

EVALUATION OF CYTOLOGICAL PATTERNS IN PAP SMEARS IN A TERTIARY CARE CENTRE

Dr Aseema Das	Associate Professor Department of Pathology ,Assam Medical College,Dibrugarh Assam
Dr Bandita Das*	Associate Professor Department of Pathology ,Assam Medical College, Dibrugarh Assam *Corresponding Author

ABSTRACT Cervical cancer is one of the leading cancers amongst women. The pap smear can detect cervical cancer at an early and easily curable stage by studying the cells naturally exfoliating from the cervix. .

Materials and methods: The study was carried out at a tertiary care institute during the period from October 2014 to October 2016. The smears were stained using Papanicolaou stain and reported according to the Bethesda system 2014.

Results: A total of 392 pap smears were studied out which 20 were unsatisfactory.75.27% cases were reported as NILM. 24.73% cases were reported as epithelial cell abnormality, of which 7.61% were ASC-US, 5.43% cases were ASC-H , 30.43% cases were LSIL, 29.35% cases were HSIL, 26.09% cases were SCC and 1.09% case was Adenocarcinoma.

Conclusion: Premalignant and malignant lesions of cervix are not uncommon in our set up, thus emphasizing the need and importance of cervical cancer screening in this region.

KEYWORDS : Pap smear,Epithelial cell abnormality

Cervical cancer is one of the leading cancers amongst women. . Worldwide, it is the third most common cancer in women with an estimated 530,000 new cases in 2008.[1] Globally, 15% of all cancers in females are cervical cancers′, while in Southeast Asia, cancer cervix accounts for 20%-30% of all cancers.[2] It is the second most common cancer among females in developing countries including India. Worldwide, it is the third most common cancer in women with an estimated 530,000 new cases in 2008.[3] According to National Cancer Registry Programme (NCRP), estimated number of cervical cancers during 2007 in India was 90,708. .[4] It is estimated that in India 1,26,000 new cases occur each year.[5] Invasive carcinoma of the uterine cervix, regardless of type develops from precursor lesions or abnormal surface epithelium, which is known as carcinoma-in-situ (CIN).[6] The importance of cervical cancer, thus, lies in the fact that the natural history has a long latent phase which enables detection and treatment of the premalignant lesions. It is one of those rare cancers which can be diagnosed and fully cured if detected at onset. The knowledge of benign epithelial cytologic abnormalities is equally essential in the practice of cytopathology as these need to be differentiated from malignant processes.Early detection and eradication of carcinoma and its precursor lesions is the mainstay for control of carcinoma cervix. The Pap smear test[7], invented by Dr. George Papanicolaou in 1940, is by far the most widely followed screening technique which can detect cervical cancer at an early and easily curable stage by studying the cells naturally exfoliating from the cervix. It is a cost effective means of screening. Screening based on Pap test (or Pap smear)has led to a dramatic reduction in the mortality rate for women who have been tested regularly in countries with an effective screening program.[8-13] This is because the Pap test detects cervical epithelial cell abnormalities which represent a spectrum of intraeptithelial lesions, from mild-to-severe dysplasia to invasive cancer.[14] In India, the incidence of carcinoma cervix continues to be high, as these services of screening for carcinoma cervix are able to touch only the fringe of this problem. A good technique of cytology, patient's co-operation for follow-up and treatment are the cornerstones for the success of cytological screening. In India, however, especially in rural areas, it is difficult to commit them for voluntary screening and follow-up. The accuracy of predicting cervical epithelial abnormalities from surface cell samples is now fully accepted. Cervical cytology by Pap smear is a simple, safe and cost-effective test and is helpful for the early detection of these lesions, and thus help the clinicians in more efficient management of the patients to halt disease progression at an early stage. The use of the Bethesda System has enabled to reduce the inter-observer variability among cytologists worldwide by providing a uniform system for reporting of cervical cytology High risk HPVs are currently considered to be the most important factor in cervicaloncogenesis. [15]HPV 16 alone accounts for almost 60% of cervical cancer cases, and HPV 18 accounts for another 10% of cases;

other HPV types contribute to less than 5% of cases, individually.

The present study was undertaken to detect the cancerous and precancerous lesions of cervix at an early stage with the help of Pap smear and interpretation of the samples according to the Bethesda system

Materials and Methods

The project study was conducted on 392 patients attending the Obsterics and Gynaecology Department of Assam Medical College and Hospital with patients coming from Upper Assam and the neighbouring state of Arunachal Pradesh for a period of two years from October 2014 to October 2016. Cytological Samples were collected using Ayre's spatula after visualizing the cervix using the Cusco's speculum from both ecto& endo cervix including transformation zone onto clean grease free labelled glass slides and fixed immediately in 95% alcohol. The smears were stained using Papanicolaou stain and examined by light microscope. The smears were reported according to the Bethesda system 2014.

I. Negative for Intraepithelial Lesion or Malignancy(NILM)
Non Neoplastic findings
Inflammatory (organisms)
ii. Epithelial cell abnormalities (ECA)

Squamous cells
* Atypical squamous cells of undetermined significance(ASCUS)
* Atypical suamous cells cannot exclude HSIL(ASC-H)
* Low grade Squamous Intraepithelial lesion (LSIL)
* High grade Squamous Intraepithelial lesion(HSIL)
* Squamous cell Carcinoma (SCC)

Glandular cells
Atypical Glandular cells
Atypical Glandular Cells of undetermined Significance(AGUS)
. Adenocarcinoma

Results:

The present study was conducted on 392 cases out of which **20** were unsatisfactory for reporting either due to low cellularity or obscuration by polymorphs or RBC's.

In our study the age range was from 30 years to 70 years with a median age of 40 years. Maximum numbers of cases were in the age group of 31-45 years and the minimum numbers of cases were in the age group <=30 years.

Out of the 372 cases where reporting could be done, 280 (75.27%) cases were negative for intraepithelial lesion or malignancy(NILM)

with non specific inflammation in 146 cases. In 92 (24.73%) cases epithelial cell abnormality was found ,7(7.61%) cases were Atypical Squamous cell of Undetermined significance (ASC-US), 5 (5.43%) cases were of Atypical Squamous Cell cannot exclude HSIL (ASC-H), 28 (30.43%) cases were Low Grade Squamous Intraepithelial Lesion(LSIL), 27 (29.35%) cases were High grade Squamous intra epithelial lesion (HSIL), 24 (26.09%) cases were Squamous Cell carcinoma (SCC) and 1 (1.09%) case was Adenocarcinoma.

Table:1

Cytodiagnosis	No. of Case
Normal	134
Inflammatory	146
ASC-US	7
ASC-H	5
LSIL	28
HSIL	27
SCC	24
Adenocarcinoma	1

Among the 146 inflammatory smears 71 were Bacterial vaginosis, 46 were candidiasis,11 were trichomonas and 18 were shift in the flora.

Pattern Of Inflammatory Smears
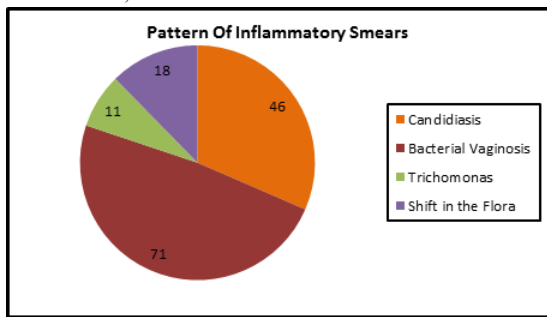
Discussions :

- In our study Pap smears reported as NILM was most common finding with 75.27% of all smears examined .This was in accordance with other studies in literature. [16,17,18] In this study 92 (24.73%) cases presented with epithelial cell abnormality(ECA) while in various studies ECA varied between 1.5 % to 12.60% . However, a higher incidence of epithelial cell abnormality was noted when compared to other studies. This may be because the study was done in symptomatic patients attending the Gynaecological OPD .Geographical, ethnical and environmental variations may also be a cause of this variations.

7(7.61%) cases were reported as ASC-US, 5 (5.43%) cases were reported as ASC-H , 28 (30.43%) cases were reported as LSIL, 27 (29.35%) cases were reported as HSIL, 24 (26.09%) cases were Squamous Cell carcinoma (SCC) and 1 (1.09%) case was Adenocarcinoma. Thus our study revealed LSIL as the most common ECA which is comparable to the study done by Banik U et al[19] who also reported LSIL as the most common ECA , while other studied showed ASCUS and LSIL to be the most common ECA .

Conclusion :

Thus the present study emphasizes the indispensable role of Pap smear in the smear detection of abnormal cervical cytology. While reviewing all the results, it is concluded that premalignant and malignant lesions of cervix are not uncommon in our set up, thus emphasizing the need and importance of cervical cancer screening.

Financial support and sponsorship

Conflicts of Interest

There are no conflict of interest

REFERENCES:
(1) Ellenson LH, Pirog EC. Chapter 22: The Female Genital Tract. In: In Robbins and Cotran Pathologic Basis of Disease.South Asia edVol 2: Elsevier Limited. Haryana. 2014: p. 1002.
(2) Bal MS, Goyal R et al. Detection of abnormal cervical cytology in Papanicolaou smears. J Cytol 2012; 29(1): 45-47.
(3) GLOBOCAN. International Agency for Research on Cancer. 2002 database. [Last cited on 2014 Nov 1]. Available from: http://globocan.iarc.fr/factsheet.asp.
(4) National Cancer Registry Programme (NCRP,ICMR). Time trends in cancer incidence rates: 1982-2005. Bangalore: NCRP; 2009
(5) Shankaranarayan R, Nene BM, Dinshaw K. Early detection of cervical cancer with visual inspection methods: A summary of completed and ongoing studies in India. SaludPublica Mex. 2003;45:S399–407.[PubMed]
(6) Koss LG, Melamed MR. Chapter 11: Squamous Carcinoma of the Uterine Cervix and Its Precursors. In Koss' Diagnostic Cytology and Its Histopathologic Bases. 5th edVol 2.Lippincott Williams & Wilkins. New York. 2005: p 283.
(7) Papanicolaou GN, Traut HF, Stanton M, Friedberg A (1943) Diagnosis of Uterine Cancer by the Vaginal Smear, Oxford University Press, New York, USA.
(8) Stenkvist B, Bergström R, Eklund G, Fox CH (1984) Papanicolaou smear screening and cervical cancer. What can you expect? JAMA 252: 1423-1426.
(9) Christopherson WM, Parker JE, Mendez WM, Lundin FE Jr (1970) Cervix cancer death rates and mass cytologic screening. Cancer 26: 808-811.
(10) Hakama M (1982) Trends in incidence of cervical cancer in Nordic countries. In Magrus K, ed. Trends in cancer Incidense. Hemisphere Publishing Corporation, Washington DC
(11) Lynge E, Madsen M, Engholm G (1989) Effect of organized screening on incidence and mortality of cervical cancer in Denmark. Cancer Res 49: 2157-2160.
(12) Macgregor JE (1976) Evaluation of mass screening programmes for cervical cancer in N.E. Scotland. Tumori 62: 287-295.
(13) Johannesson G, Geirsson G, Day N (1978) The effect of mass screening in Iceland, 1965-74, on the incidence and mortality of cervical carcinoma. Int J Cancer 21: 418-425.
(14) Banik U, Bhattacharjee P, Ahamad SU, RahmanZ. Pattern of epithelial cell abnormality in Pap smear: A clinicopathological and demographic correlation. Cytojournal 2011;8:8.
(15) Hassumi-Fukasawa MK, Miranda-Camargo FA, Zanetti BR, Galano DF, Ribeiro-Silva A,Soares EG. Expression of BAG-1 and PARP-1 in precursor lesions and invasive cervical cancer associated with human papillomavirus (HPV). PatholOncol Res. 2012;18:929-37.
(16) Filipi K,Xhani A. Assesment of cervical cytological data in Albanian females. Asian Pac J Cancer Prev 2014 ; 15:2129-32
(17) Pradhan B,Pradhan SB,Mittal VP.Correlation of Pap smear findingswithclinical findings and cervical biopsy.Kathmandu universityMed J 2007: 5:461-7
(18) Bamanikar SA,Baravkar D .Study of cervical cytology and its correlation with clinical and histopathological findings.Clin Cancer Investig J 2016: 5:403-8
(19) Banik U ,Bhattacherjee P.Pattern of epithelial cell abnormality in Pap smear: A clinicopathological and demographic correlation.CytoJournal 2011; 8:8