

Studies and Report of Cytological Examination (Exfoliative and Aspiration) in a District Level Hospital in West Bengal, India

Gopeswar Mukherjee^{*1}, Subrata Mondal¹, Rajesh Sikdar², Sudip Mallick², Proma Mallick², Sandipan Ghosh³

¹Department of Pathology, North 24 Parganas District Hospital, Kolkata 700124, India

²Department of Oncology, North 24 Parganas District Hospital, Kolkata 700124, India

³Department of Transfusion Medicine and Blood Bank, North 24 Parganas District Hospital, Kolkata 700124, India

* Author for Correspondence: gopes54@yahoo.co.in +919330967242

Abstract— Cytological examination is cost-effective, less time consuming method for initial diagnosis and in some cases for confirmation of diagnosis as well as to differentiate between neoplastic and non-neoplastic conditions. Results are obtained in a short time and it is usually a pain less method requiring no anesthesia which can be performed as an OPD method. Various preventive measures can be taken against the development of cancer especially where pre-cancerous results are obtained in the study – both exfoliative and aspiration (e.g. dysplastic change).

Keywords— FNAC, Exfoliative Cytology, Malignancy, Inflammation.

I. INTRODUCTION

Cytological examination is a low cost, less time consuming simple procedure for diagnosis of various diseases and also to monitor the response of treatment. Cytological examination is classified usually in two types: Exfoliative and Aspiration Cytology [1].

Exfoliative cytological examination is usually done in various fluids or secretion whereas aspiration cytology is done by aspiration from different masses in the body by fine needle, so it is commonly called as Fine Needle Aspiration Cytology [FNAC]. Virtually, any superficial tissue / organ can be aspirated to have the sample. Small quantity of sample is required for this study. Sometimes, deep organs can be aspirated under the guidance ultrasound or computed tomography. The accuracy of the cytological examination is variable, but around 80 – 90% [2]. Further confirmation can be done by histopathological examination, if needed.

In this study, reports of both exfoliative and fine needle aspiration cytology [FNAC] done in North 24 Parganas District Hospital, Barasat, Kolkata has been presented.

II. MATERIALS AND METHODS

This study is an observational cross-sectional study in which total 566 number of cases (Exfoliative: 340 and Aspiration: 226) has been examined. Smears prepared from the material collected from cervix, mouth ulcers and nipple discharge has been examined as exfoliative cytological study. Aspiration cytology has been done after preparing the slides from the material collected by fine needle aspiration (FNA) from superficial swelling including breast lump, lymph node, etc. It was done under aseptic condition using a 23 gauge needle fitted with a 10 ml disposable syringe attached to a plunger. In all these cases, consent was taken from the patient.

All these procedures were done by following standard norms [1], [2], [5], [7].

Smears after preparation in all cases of exfoliative and aspiration cytology were fixed immediately by methanol. This study was done in the Department of Pathology along with the Department of Oncology, North 24 Parganas District Hospital, Barasat, Kolkata 700124 after having permission from the Superintendent of the hospital. Staining of the slides were done by Papanicolaou stain in the cases of exfoliative cytology study and by Leishman – Giemsa stain in cases of aspiration cytology after fixation in both cases following the standard norms and procedure [1],[2], [4].

Exfoliative cytological study was done from 2015 to 2018 having 340 numbers of cases and aspiration cytological study was done in 2017 and 2018 having total 226 number of cases.

III. RESULTS

In cases of exfoliative cytology, 294 cases of cervical smears, 18 cases of nipple discharge and 28 cases of smears taken from oral lesions were examined. In cases of aspiration cytology, total 226 cases have been studied where material was taken by fine needle aspiration from superficial swelling on the body having 130 cases from breast lump and 61 cases from the superficial swelling on different parts of the body as well as 35 cases from the superficial lymph nodes. In cases of aspiration cytology, total male and female cases were 66 and 160 respectively. In case of exfoliative cytology, male and female cases were 20 and 320 respectively. Results have been shown in the table below:

TABLE I. Sex-wise distribution of Exfoliative Cytology.

Sex	No. of Cases	Total
Male	20	340
Female	320	

TABLE II. Site wise distribution of Exfoliative Cytology.

Site	No. of Cases	Total
Cervix	294	340
Nipple Discharge	18	
Oral lesion	28	

TABLE III. Year wise distribution of Exfoliative Cytology.

Year	No. of Cases	Total Cases
2015	157	340
2016	67	
2017	63	
2018	53	

TABLE IV. Disease wise distribution of Exfoliative Cytology.

Diagnosis	No. of Cases
Chronic Non-specific inflammation	203
Chronic inflammatory changes with atypical cell	58
Atypical squamous cells with undetermined Significance (ASCUS)	46
Presence of dysplastic cells	27
Presence of malignant cells	6 (Cervix: 4; Oral: 2)

TABLE V. Sex, Year and site wise distribution of FNAC.

(i) Sex Wise Distribution		
Sex	No. of Cases	
Male	66	
Female	160	
(ii) Site wise Distribution		
Site	No. of Cases	
Breast	130 (Female: 126; Male: 4)	
Superficial Swelling	61	
Lymph Nodes	35	
(iii) Year wise Distribution		
Year	No. of Cases	Total
2017	93	226
2018	133	

TABLE VI. Diagnosis wise distribution of FNAC.

Diagnosis	No. of Cases	Total
Fibrocystic disease of the breast	64	226
Fibroadenoma	54	
Fibrolipoma	52	
Pleomorphic salivary adenoma	4	
Chronic non-specific inflammation	38	
Gynaecomastia	3	
Malignancy (Presence of malignant cells)	11	

IV. DISCUSSION

Cytological examination is an effective tool for initial screening and in some cases for final diagnosis of the disease. Depending upon the cytological finding further investigations are performed in many cases to achieve the final diagnosis. It is a cost effective and simple technique for initial screening. These tests have been done free of cost in the hospital.

In our study, in case of exfoliative cytology, chronic non-specific inflammation was the common finding followed by the presence of atypical cells. Chronic non-specific inflammation has been found as the common finding in some other studies [3], [5].

Presence of ASCUS and dysplastic cells is the next common finding in our study. Dysplastic change is a condition which can turn to malignancy afterwards. So, prevention is very important in this condition as has been advocated by others [3], [8]. ASCUS cases require follow-up to note

whether it further progresses or not then accordingly measures should be taken.

In case of FNAC, fibrocystic disease of the breast is the common finding followed by fibroadenoma which has been also reported in some other studies in case of FNAC of the female breast. Fibrolipoma is the common finding in cases of superficial swelling as has been reported by others [5, 6, 7, 8].

Chronic non-specific inflammation is also an important and common finding in FNAC as has been found in our study and also in some other studies [7, 8]. Gynaecomastia in male breast and pleomorphic salivary adenoma is less common finding in our study. Presence of malignant cell has been found in fewer cases in our study and was confirmed by biopsy afterwards done in referral centres. It is specifically helpful to initiate the earlier treatment in malignant conditions which can prolong the life of malignant cases without any delay.

V. CONCLUSION

Exfoliative cytology is an easy and cost-effective procedure to reach a particular diagnosis which can help in further treatment. FNAC is a rapid, cost-effective and convenient procedure for tissue diagnosis that can be done in out-patient department. It can help to differentiate between neoplasia and non-neoplastic lesions. This procedure is safe, free from complications and is usually well tolerated by the patients having no need of anesthesia and results are usually obtained in a short time. So, it can be regarded as complimentary diagnostic tool to histopathological test.

ACKNOWLEDGEMENT

Authors are grateful to the Superintendent of the Hospital for his kind consent to perform the study. Authors are also grateful to the staffs of the Departments of Pathology and Oncology for their co-operation.

CONFLICT OF INTEREST

None declared.

REFERENCES

- [1] J. Sengupta, "Cytological Staining" in *Synopsis of Clinical Pathology and Microbiology*, 7th. Ed, Hilton & Company, Kolkata, India, pp. 334 – 335, 2011.
- [2] R. N. Verma, "Staining" in *Diagnostic Manual and Colour Atlas of Fine Needle Aspiration Cytology*, 1st. Ed, Banik Trader, Kolkata, India, pp. 4 – 6, 1992.
- [3] R. Gupta, D. Dewan, R. Raina, and M. Gupta "Exfoliative cytology of body fluids: a Study from provincial hospital of Jammu region, India" *International Journal of Research in Medical Sciences*, vol. 4, issue 4, pp. 1016 – 1019, 2016.
- [4] Y. Pawade and S. Kathala "Fine needle aspiration cytology as a diagnostic tool in Head and Neck lesion", *Journal of Evolution of Medical and Dental Science*, vol. 3, issue 45, pp. 11072 – 11078, 2014.
- [5] E. E. Siddig, A. E. Siddig, A. Edresis, A. Omar, and A. H. Fahal, "Fine needle aspiration for cytology: A diagnostic tool for breast lesion in low resources areas", *Khartoum Medical Journal*, vol. 08, issue 03, pp. 1153 – 1157, 2015.
- [6] A. Joshi and N. Mahajan, "Diagnostic utility of various techniques used in body fluid cytology", *Journal of Dental Medical Science*, vol. 13, issue 1, pp. 13 – 18, 2014.
- [7] M. Tewary, "Role of FNAC in diagnosis of breast lumps", *Kathmandu University Medicine*, vol. 5, pp. 215 – 217, 2007.



- [8] E. Siddig, "Fine needle aspiration: past, current practice and recent developments", *Biotech and Histochemistry*, vol. 89, pp. 241 – 244, 2014.