Journal of Scientific and Innovative Research 2019; 8(2): 56-58
Available online at: www.jsirjournal.com

Case Report

ISSN 2320-4818
JSIR 2019; 8(2): 56-58

Received: 19-05-2019
Accepted: 11-06-2019

Dr. Sumathi S.
Professor, Department of Pathology, Melmaruvathur Adhiparasakthi Institute of Medical sciences and Research (MAPIMS), Melmaruvathur – 603 319, Tamil Nadu, India

Correspondence:
Dr. Sumathi S.
Professor, Department of Pathology, Melmaruvathur Adhiparasakthi Institute of Medical sciences and Research (MAPIMS), Melmaruvathur – 603 319, Tamil Nadu, India
Email: mr.rathinamari[at]rediffmail.com

Imprint cytology – A useful alternative tool for FNAC in diagnosing Hodgkin lymphoma. A case report

Sumathi S.

Abstract

Hodgkin lymphoma is a common lymphoid malignancy and the diagnostic hallmark is the presence of Reed Sternberg giant cells. One of the limitations in cytodiagnosis of it is lack of representative sample. Here the author missed the diagnosis of Hodgkin lymphoma in fine needle aspiration cytology and diagnosed by imprint cytology taken from excised nodes. This paper is presented to emphasize the usefulness of imprint cytology in improving the diagnostic accuracy of Hodgkin lymphoma.

Keywords: Hodgkin's disease, Lymphoma, Imprint smear, Node Cytology, FNAC.

INTRODUCTION

Lymphoma is a malignant tumour of tissue lymphocytes commonly affecting lymph node. It is classified into two major classes as Non-Hodgkin (NHL) and Hodgkin lymphoma (HL) and the latter of which is characterised by the presence of distinct tumour cell called Reed Sternberg (RS) giant cells. Rapid and accurate diagnosis is of paramount importance in medical care especially for malignant diseases [1]. Though the histopathological study is the gold standard method, Imprint cytology is one of the rapid methods of tissue diagnosis and proved to be a rapid inexpensive tool for diagnosing lymph node lesions [2]. Here we reported a case of Hodgkin lymphoma which was missed in fine needle aspiration cytological study (FNAC) but diagnosed by imprint cytological study of fresh excised lymph node tissue by the characteristic Reed Sternberg cell morphology. The purpose of this presentation is to highlight the value of imprint cytology in diagnosing Hodgkin lymphoma as well as better morphological appreciation of tumour cells (RS) in cytology than biopsy.

CASE REPORT

A 30 years old lady presented to cytological laboratory for aspiration cytological study of a swelling in the axillary region. Clinical examination showed large, soft, mobile nodular mass of size 5-6cm in right side axillary region. FNAC was done after getting consent from the patient using 23 G needle. Repeated aspirates yielded scanty material and cyto smear showed anucleated squames and adipocytes only. In view of scanty cellularity on repeated aspirates, it was reported as non-representative sample with a probability of adnexal mass lesion. Since the patient was not willing for the repeat FNAC procedure, excision biopsy was done for planning further management. During surgery, Surgeon noted multiple matted chains of nodes in axilla and so suggested imprint cytological study to rule out malignancy. Gross examination of excised lymph node showed lobulated external surface and homogenous cut surface [Figure-1]. Imprint cytology was done by following the undermentioned procedure.

Imprint smear Technique

- Wipe out the blood with gauze and cut open the tissue.
- Again, dry the surface by gauze. Smears were prepared by two techniques- touch and scrapping technique
- **Touch smear** – Touch the smear with the cutsurface of tissue (2 slides)
- **Scrapping technique** –Gentle scrapping of the cut surface of the tissue with the corner of glass slide and smear was prepared on other slides (2 slides)
- Slides were immediately fixed in 70% alcohol for 5 minutes. Afterwards slides were stained with two rapid stains called Toludine blue (TB) and rapid Haematoxylin & Eosin stain (H&E).

Rapid Staining procedure

- Toludine blue stain – Cover the smear with 1% alcoholic Toludine blue for 5 minutes and then washed with water.

- Haematoxylin & Eosin – Slides were kept in Haematoxylin stain for 5 minutes. Then rinsed in running water. Afterwards slides were dipped once in 1% acid alcohol followed by running water wash for 2 minutes. Then slides were dipped in Eosin stain for 10 times and washed in water.

All smears were screened and compared for cellularity as well as morphology. Cellularity was more in scrapping technique than touch smear and nuclear morphology was better appreciated in TB stain than H&E stain. Both cytosmear study showed monomorphous population of lymphoid cells with granular chromatin and scattered mono and binucleated Reed Sternberg tumour cells [Figure-2, 3]. Many tumour cells show emperipolesis with intracytoplasmic intact lymphoid cells [Figure-4]. Cytodiagnosis of Hodgkin lymphoma was made within 15-20 minutes and the tissue was fixed in formalin for histopathological study. Biopsy sections showed diffuse effacement of architecture by monomorphous lymphoid cells and scattered classic RS tumour cells [Figure-5]. Cytomorphology of RS cells were well appreciated in cyto smears than biopsy section. Cytodiagnosis of HL was confirmed by biopsy as lymphocyte rich classic Hodgkin lymphoma and the report was released with a suggestion of immunophenotypic confirmation.

DISCUSSION

Fine needle aspiration cytology (FNAC) is a simple useful diagnostic tool for lymphoid malignancies [3]. But the diagnostic accuracy in cytological study depends on adequate cellularity and representative sample. The problem encountered in many FNAC is insufficient cellularity and non representative sample. This might be due to technical procedural failure by inexperienced hand or the desmplastic nature, small size and deep location of the lesion. In our case, the wrong and missing of diagnosis of HL in FNAC was due to non representative sample, though the node was large, soft as well as in accessible site. The probable reason for this false negative report might be a procedural failure and the needle might have entered up to the depth of perinodal fat only that yielded adipocyte clusters alone. Even if our needle enters into the nodal tissue, HL diagnosis relies on the presence of RS tumour cells which can be missed sometimes by focal nodal aspiration cytological study. This problem can be minimized and avoided by Imprint cytology where smears are made directly from wide area of fresh excised tissue. Imprint cytology is one of the quickest inexpensive mode of tissue diagnosis whereas histopathological study takes 3-5 days for final diagnosis. The sensitivity and diagnostic accuracy was studied by various authors in various lesions [4, 5]. Many studies used Touch imprint smear alone for diagnostic accuracy. But we tried both touch as well as scraping technique as the study by Gore etal to acquire maximum cells and it showed better cell yield in scrapping technique than touch smear [6]. Tissue morphology on biopsy section was also not affected in our study because of this scrapping technique. Similar to the study by Adlekha, we also tried two stain techniques of Toludine blue and rapid Haematoxylin & Eosin stain for assessing the nuclear morphology [7]. Diagnosis of lymphoma and differentiation of it from reactive proliferative lymphoid disorder needs good nuclear morphology. Since the staining time of Toludine blue is less and it is a good nuclear stain, we tried this stain in addition to conventional rapid H&E stain. The granular nuclear chromatin, nucleoli, monomorphous population of lymphoid cells and RS tumour cell morphology were better appreciated in Toludine blue than our conventional stain. One more finding we appreciated in imprint smear was emperipolesis characterised by the presence of intact lymphoid cells within RS tumour cells. It is a hallmark feature of Rosai -dorfman disease but can occur in association of lymphoma and leukaemia also [8]. Moreover FNAC also has additional risk of tumour spread by dislodging the cells into vessels and needle track implants [9, 10]. This can be avoided by preferring this imprint cytology on excision biopsy instead of FNAC. Our cytodiagnosis of Hodgkin lymphoma was confirmed by biopsy study. Though architectural pattern was not seen in imprint smear, cytomorphology was well appreciated in it rather than biopsy section. However, Immunophenotypic study of lymphoma is essential for planning the management and assessing the prognosis. This imprint cytological slides can be utilised for this immunophenotypic study since cells were distributed in scattered pattern in imprint smear that makes the interpretation easy also..This paper highlights the role of imprint cytology in overcoming the limitations of FNAC like insufficient cellularity, non representative sample, and its usefulness for rapid per operative diagnosis as frozen section. So it can be used as a supplementary or alternative tool for all suspected malignancies for improving diagnostic accuracy.

Figure 1: Gross appearance of excised lymph node showing lobulated surface with perinodal fat

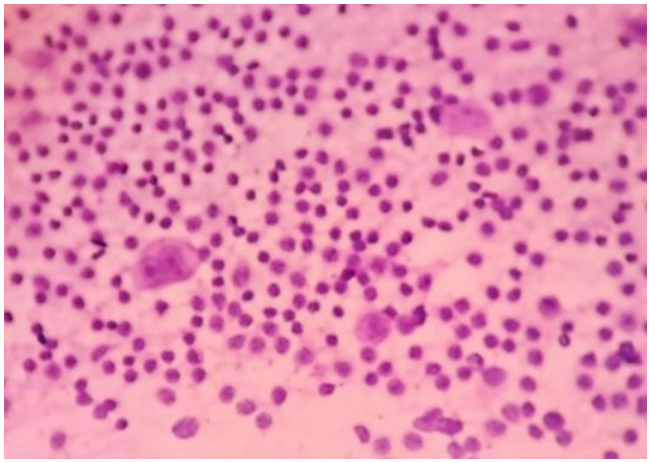

Figure 2: Photomicrograph showing monomorphous lymphoid cells with classic binucleated Reed-Sternberg giant cells. Imprint smear-Haematoxylin & Eosin stain x 400

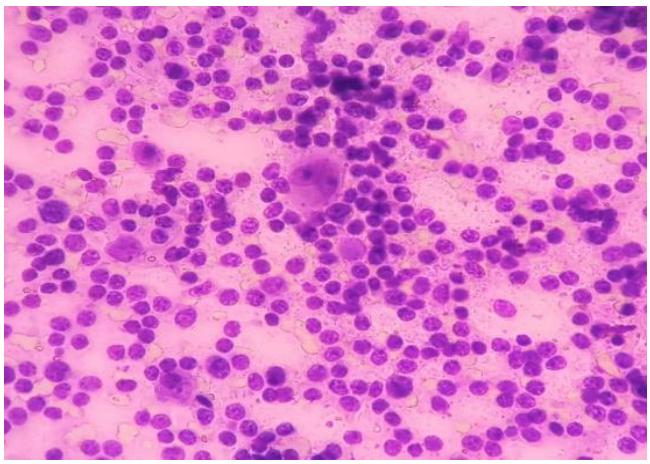

Figure 3: Photomicrograph showing monomorphous lymphoid cells with classic binucleated Reed-Sternberg giant cells. Imprint smear- Toludine blue stain x 400

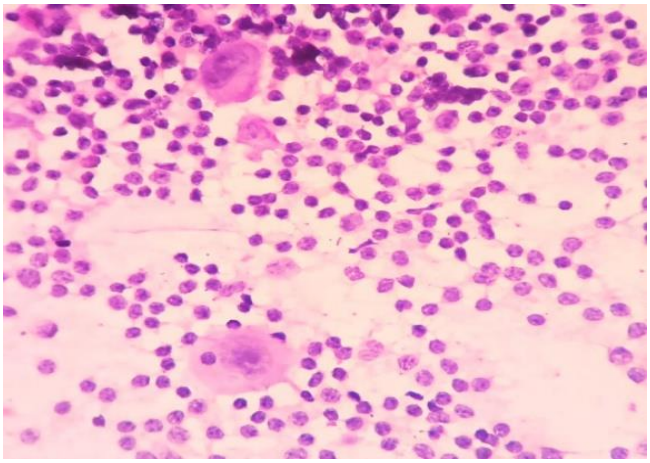

Figure 4: Photomicrograph showing mononuclear Reed-sternberg giant cells with emperipolesis.Imprint smear –Haematoxylin & Eosin stain x 400

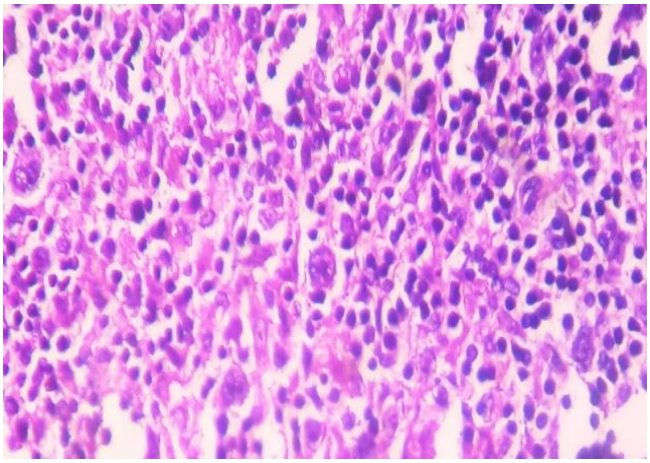

Figure 5: Photomicrograph showing diffuse effacement of node with predominant lymphoid cells and classic binucleated Reed-Sternberg giant cells. Biopsy section-Haematoxylin & Eosin stain x 400

Acknowledgement

The author is thankful to our organization MAPIMS for permitting us to do this study and our technical staff for their help in staining techniques.

REFERENCES

1. Jayanti Chanrakar, Shruti Srivastava. Evaluation of the relevance of touch imprint cytology in the diagnosis of various neoplastic lesions. International Journal of Research in Medical Sciences. 2015; 3(11):3046-3050.
2. Arif SH, Mohd Jaseem Hassan, Manu Jain, Verma AK, Naim M. Role of Imprint cytology in diagnosis of lymphnode lesions. Indian Medical Gazette. 2011; 385-390.
3. Anne R Wilkinson, Sadhana D Mahore, Sabiha A Mimoon. FNAC in the diagnosis of lymphnode malignancies: A simple and sensitive tool. Indian journal of Medical and Peadiatric oncology. 2012; 33(1):21-24.
4. Amit Kumar Adhya, Madhabananda Kar, Ranjan Mohanty. Diagnostic utility of Touch imprint cytology in the evaluation of Intraabdominal tumors. Oncol J.India. 2018; 2:47-50.
5. Kubik MJ, Bovbel A, Goli H, Saremian J, Siddiqi A, Maood S. Diagnostic value and accuracy of imprint cytology evaluation during image guided core needle biopsies: Review of our experience at a large academic center. Diagnostic cytopathology. 2015; 43:773-9.
6. Gore CR, Singh BK, Chandanwale SS, Gurwale SG, Kumar H, Bawikar R *et al*. Imprintcytology: A boon in tissue diagnosis. Medical Journal of Dr. DY Patil University. 2017; 10:58-63.
7. Adlekha S, Chadha T. Comparison of different stains in imprint cytology with the conventionl diagnostic tools in detection of Helicobacter pylori infection. Chrismed J Health Res. 2015; 2:218-22.
8. Varun Rastogi, Rachna Sharma, Satya Ranjan Misra, Lalita Yadav, Vandana Sharma. Emperipolesis – A Review. Journal of clinical and diagnostic research. 2014; 8(12):ZM01-ZM02.
9. Metcalfe MS, Bridgewater FHG, Mullin EF, Maddern GJ. Useless and dangerous –Fine needle aspiration of hepatic colorectal metastasis. British medical journal. 2004; 328:507-8.
10. Shyamala K, Girish HC, Sanjay Murgod. Risk of tumor cell seeding through biopsy and aspiration cytology. Journal of International society of preventive and community dentistry. 2014; 4(1):5-11.