Original Article

Role of fine needle aspiration cytology in the preliminary diagnosis of Hodgkin's disease

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Abstract

This study includes eighteen cases of Hodgkin's Disease (HD) diagnosed on Fine Needle Aspiration Cytology (FNAC) in the Department of Pathology, in two institutions, over a 3 year period. There were 14 (76%) male and 4 (24%) female patients. The patients ranged in age from 12 to 62 years (mean = 39 years). Sixteen cases presented with localised/generalised lymphadenopathy (cervical =10, axillary = 4, inguinal = 2), and one case presented with a retroperitoneal mass and one with a mediastinal mass. Histopathological confirmation was done in eight out of the eleven newly diagnosed cases. The other three cases were diagnosed on cytology itself. There were two cases of recurrent HD in which adequate diagnostic material was obtained on FNAC, thus obviating the need for histopathology. Cytology offers a rapid and accurate approach for the initial recognition as well as the diagnosis of recurrent HD.

Keywords: Hodgkin's disease, lymph node, FNAC.

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Received Date: 09/07/2016 Revised Date: 02/08/2016 Accepted Date: 10/09/2016

Access this article online

Quick Response Code:

Website: www.statperson.com

DOI: 17 September 2016

INTRODUCTION

Fine Needle Aspiration Cytology (FNAC) is widely used in the evaluation of lymphdenopathies. This simple diagnostic procedure is ideally suited for palpable and enlarged lymph nodes in both paediatric and adult clinical practice. Deep seated lymph nodes can be sampled under radiologic guidance. The accuracy of FNAC diagnosis of lymph nodes is influenced by many factors such as the site and size of the node, fibrosis, and the number of punctures made. Both reactive nodes, and nodes involved by metastatic malignancy or lymphoma are cellular tissues and sufficient material is therefore easily obtained except in the presence of fibrosis.

MATERIALS AND METHODS

FNAC was done using a 22 gauge needle using the aspiration or the non aspiration technique[1]. Half of the smears made were stained with Papanicolaou stain, and the remaining half were stained with the May-Grunwald Giemsa stain. Correlation with histopathology findings was done wherever possible.

RESULTS

The eighteen cases that were diagnosed on FNAC included 14 (76%) male and 4 (24%) female patients. The age of the patients ranged from 12 to 62 years (mean = 39 years). Sixteen cases presented with localised / generalised lymphadenopathy (cervical = 10, axillary = 4, inguinal = 2). One patient presented with a retroperitoneal mass and one with a mediastinal mass. Three patients also had hepatosplenomegaly, and five patients had 'B' symptoms. In addition, other clinical findings included cough in two patients, and an epidural mass, pleural effusion with lung lesion, and ascites in one patient each.

How to site this article: Naseem Noorunissa, Prema Saldanha, Radha R Pai. Role of fine needle aspiration cytology in the preliminary diagnosis of Hodgkin's disease. *International Journal of Recent Trends in Science and Technology*. September 2016; 20(2): 245-247 http://www.statperson.com (accessed 20 September 2016).

One patient had associated prurigo nodularis. Two cases included in the study were recurrent HD. The cytological features included the presence of classical binucleate (Reed – Sternberg [R-S] cells), uninucleated Hodgkin's cells, and multilobated (popcorn) cells, in a background of mature as well as activated lymphocytes, plasma cells, neutrophils, eosinophils and histiocytes. Epithelioid granulomas were seen in three cases. Histopathological (HP) confirmation was done in eight (70%) out of the eleven fresh cases. The other three cases were diagnosed on cytology itself. In the two cases of recurrent HD, HP examination was not done. Immunohistochemistry was possible in only one case – the R-S cells were CD30 and CD 15 positive. Sub typing in 16 cases showed mixed cellularity as the predominant type (9 cases). There were 4 cases of nodular sclerosis (one was syncytial variant), and one case of lymphocyte depletion (reticular subtype) and 2 cases of nodular lymphocyte predominance.

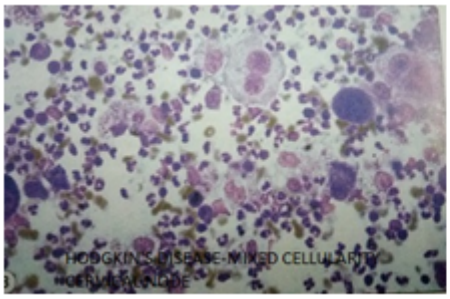

Figure 1

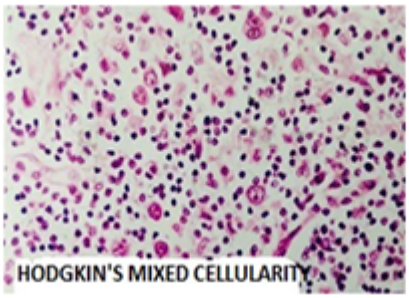

Figure 2

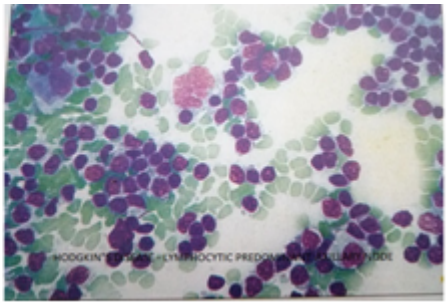

Figure 3

DISCUSSION

Hodgkin's disease is a primary malignancy of lymphoid tissue accounting for 30-40% of all malignant lymphomas, with a slightly higher incidence in males. Patients are frequently between the 2nd and 4th decades of life, however, it can occur in all age groups. Patients usually present with painless lymphadenopathy. The cervical lymph nodes are most commonly involved, followed by mediastinal and axillary nodes[2]. The hallmark of HD is the presence of R-S cells. The classical R-S cells are binucleated containing mirror-image nuclei, each with a single prominent macronucleolus. Variations of R-S cells with multinucleated and multilobulated (popcorn) cells, or mononuclear forms (Hodgkin's cells) occur. Histologic classification of HD based on the relative proportion of lymphoid cells and classic R-S cells includes lymphocyte predominant (LP), mixed cellularity, lymphocyte depleted (LD) and nodular sclerosing types[2]. Guthrie was the first to diagnose HD by FNAC in 1920[3]. The cytological findings include R-S cells, atypical mononuclear cells (Hodgkin's cells), a variable number of eosinophils, plasma cells, histiocytes and background of lymphocytes[1]. A confident diagnosis of HD can only be made in the presence of typical R-S cells with a background of lymphocytes and reactive cells[1,2,3,4]. In the absence of such findings, the definitive diagnosis must await histological examination except in recurrent disease when classic R-S cells are not essential for diagnosis[1,3,4]. Even if classic R-S cells are seen, caution should be exercised as near perfect mimics of R-S cells or mononuclear Hodgkin's cells may be seen in reactive lymphadenopathies and some non Hodgkin's lymphomas[1,5,6]. Sub classification of HD is not possible on the basis of FNAC[1,3,7]. Most authors feel that it may not be worthwhile to sub classify HD and the clinicopathologic stage is actually the most relevant factor affecting treatment and prognosis[6]. However, some others have done sub typing on FNAC smears with a fair degree of accuracy by using differential cell counts[8]. The two extremes LP and LD are of course reflected in the smears by the number of lymphocytes relative to the number of R-S and Hodgkin's cells. A suggestion of the presence of the lacunar type of R-S cell characteristic of nodular sclerosis HD as seen in histological sections, is occasionally present in FNA smears. The tough consistency of the node felt with the needle, a scanty aspirate, and the presence of fibroblasts and collagen fragments in the smear are features suggestive of the nodular sclerosis type. In the mixed cellularity type, typical R-S cells are usually easy to find, and there are many plasma cells and eosinophils, as well as histiocytes in the background cell population[1]. The presence of epithelioid histiocytes suggestive of granulomatous lymphadenitis can lead to problems in diagnosis. It is necessary to look for large atypical R-S like cells in such cases [1,6,7]. The granulomas are composed of discrete epithelioid cells unlike tuberculosis where there are well-defined granulomas along with caseous necrosis[9]. However, the role of aspiration cytology in HD continues to be a source of debate. Some report that a primary diagnosis should never be made solely by FNAC, while others document that HD can be reliably diagnosed as such[6]. As opposed to Non- Hodgkin's lymphoma (NHL),

the cytologic diagnosis of HD relies mainly on morphologic criteria. Flow cytometry and other immunocytochemical studies are of less value because of the relative lack of neoplastic cells in relation to background cells. Due to the morphological similarities with some NHLS, and the difficulties of immunopheno typing, a cytologic diagnosis of HD must be followed by a surgical biopsy. In this sense, FNAC selects patients in whom a lymph node biopsy is necessary. The high accuracy demonstrated for the initial diagnosis of HD increases the capacity of FNAC as a first level diagnostic technique in the screening of lymphadenopathies[7].FNAC is a reliable pre-operative diagnostic technique with few diagnostic pitfalls. Cytology offers a rapid and accurate approach for the initial recognition of HD as well as the diagnosis of recurrent HD. It also offers the possibility of a specific diagnosis and sets the indications for a lymph node biopsy[7].

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Source of Support: None Declared
Conflict of Interest: None Declared