



NODULAR SCLEROSIS HODGKINS LYMPHOMA GRADE 2 MIMICKING ANAPLASTIC LARGE CELL LYMPHOMA - A CASE REPORT

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ABSTRACT **INTRODUCTION:** Hodgkin's lymphoma (HL) is a lymphoproliferative neoplasm constituting less than 1% of all neoplasms. It has been categorized into- nodular lymphocyte predominant HL and classical type with subtypes- lymphocyte rich, lymphocyte depleted, nodular sclerosis and mixed cellularity. Nodular sclerosis Hodgkin's lymphoma (NSHL) is difficult to diagnose on FNA because of the lack of Reed Sternberg (RS) cells, low cellularity and difficulty in identifying the counterpart of lacunar cells. **CASE REPORT:** A 16-year-old female presented with anterior chest wall swelling since 6 months measuring 5x4cm along with incidentally noted cervical lymph nodes measuring 2x2cm and 1x1cm. On examination, multiple papular skin lesions were observed. FNAC smears from cervical lymph node showed high cellularity, with sheets of binucleated and multinucleated cells having multiple nucleoli, some showing pale bluish abundant cytoplasm whereas others showing dense cytoplasm; in a background of reactive lymphoid population with few neutrophils. Few giant cells showed hyperchromatic nuclei. Abnormal mitosis seen. No typical RS cell was seen. Peripheral blood smear showed neutrophilic leukocytosis with no atypical cell. Possibility of NSHL was considered and biopsy advised to rule out ALCL. Histological sections showed near total effacement of lymph node architecture by nodules separated by broad fibrotic bands. These nodules exhibit proliferating lymphocytes with clustered lacunar cells along with some mononucleate, binucleate and multinucleated cells. Prominent mitotic activity, angiogenesis, focal micro abscesses were noted. Immunohistochemistry showed CD 15+ and CD 30+ expression in the giant cells, confirming diagnosis of NSHL grade 2. **CONCLUSION:** NSHL poses a cytological diagnostic dilemma specially in absence of sclerosis on FNA, making histological examination and IHC mandatory.

KEYWORDS : Hodgkins lymphoma, Cytology, Nodular Sclerosis type, ALCL

INTRODUCTION

Hodgkin's lymphoma (HL) is a lymphoproliferative neoplasm constituting less than 1% of all de novo neoplasms world wide¹ and 10% of all lymphoma cases. HL has been categorized into two main types- nodular lymphocyte predominant Hodgkins lymphoma and classical type with subtypes- lymphocyte rich, lymphocyte depleted, nodular sclerosis and mixed cellularity. Numerous studies have been found describing the cytological features of HL and the diagnostic criteria are well established^{1,2,3}. However, there have been controversies over subtyping of Hodgkins lymphoma based on cytomorphological findings. Cytological features seen in HL are characteristic multinucleated giant cells termed as Reed-Sternberg (RS) cells within an inflammatory background. The tumor population also includes neoplastic cell variants, specific to the subtypes of HL⁴. However, the subtype, Nodular sclerosis Hodgkin's lymphoma (NSHL) is difficult to diagnose and categorize on FNA because of the lack of typical Reed-Sternberg cells, low cellularity due to sclerosis and difficulty in identifying the counterpart of lacunar cells on FNA smears⁵. This case is being presented for the diagnostic dilemmas in establishing the diagnosis of NSHL on cytology.

CASE REPORT:

We present the case of a 16-year-old female who presented with anterior chest wall swelling since 6 months. The swelling measured 5x4cm. Along with that few enlarged cervical lymph nodes were noted incidentally, measuring 2x2cm and 1x1cm respectively. No systemic symptoms like fever or malaise was present. On examination, multiple papular skin lesions were observed (Fig 1).



Fig 1. Clinical images showing supraclavicular lymph node measuring 2x2 cm (left) and multiple papular skin lesions over extensor surface of bilateral forearm

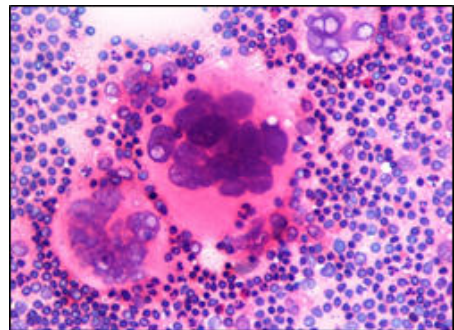


Fig 2. FNA smear showing bizarre multinucleated cells. (H&E 40x)

FNAC (Fig 2) from anterior soft tissue chest wall swelling and left cervical lymph nodes. FNA smears from both showed high cellularity showing presence of numerous binucleated and multinucleated giant cells, with prominent multiple nucleoli and macro nucleoli. The cytoplasm was varying from pale bluish abundant cytoplasm to dense cytoplasm. Few giant cells showed hyperchromatic nuclei. Abnormal mitosis was also seen. No typical RS cell was seen. Background population comprised of reactive lymphoid population admixed with few neutrophils, plasma cells and dendritic reticulum cells. FNA diagnosis given was lymphoma with differentials of 1) Nodular sclerosis Hodgkin lymphoma and 2) Anaplastic large cell lymphoma (ALCL). Peripheral blood smear examination showed neutrophilic leukocytosis with no atypical cell. Biopsy with immunohistochemistry was advised. CT scan of the chest showed significantly enlarged intercostal, bilateral internal mammary, perivascular, pre-tracheal, pre-carinal and subcarinal lymph nodes. Deposits were noted in the pericardium, left pleural space and left intercostal space at the level of 3rd and 4th intercostal space which was extending outwards into the subcutaneous tissue of the chest wall, the site of FNA. Excision biopsy of supraclavicular lymph node (1x1 cm) was performed. Sections from which showed near total effacement of lymph node architecture by nodules which were separated by broad fibrotic bands. These nodules exhibited proliferation of lymphocytes admixed with clusters of numerous mononucleate, binucleate and multinucleated RS like cells along with lacunar cells. Prominent mitotic activity and angiogenesis was also present. Focal micro abscesses and peripheral sprinkling of plasma cells and eosinophils was seen. Immunohistochemistry showed CD 15+, CD 30+ in the large cells (Fig. 3a-3e). Final diagnosis of Nodular sclerosis - classic Hodgkins lymphoma, grade 2 was given.

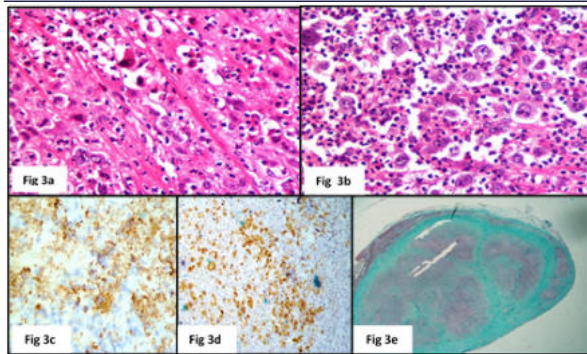


Fig 3. Histological examination. 3a) H & E section shows sclerotic bands along with atypical cells. 3b) H & E section shows lacunar cells with few binucleated & multinucleated cells along with few neutrophils (40x). 3c) IHC showing cytoplasmic CD15 (40x) & 3d) CD30 (10x) positivity in lacunar cells. 3e) Trichrome stain highlighting sclerotic bands surrounding the nodules. (10x)

DISCUSSION

FNAC is quite a useful diagnostic tool in cases of lymphadenopathy and aids in the diagnosis of lymphomas⁶. It very well differentiates between Hodgkin and Non-Hodgkin lymphoma. Nodular sclerosis Hodgkin lymphoma, which is the most common subtype of classic HL, constitutes 70% of cases⁷. It typically affects young adults with female predilection. Common clinical presentation is bulky mediastinal mass, sometimes along with supraclavicular lymph node involvement.

Cytological findings of NSHL includes multi-lobated Hodgkin/Reed-Sternberg cells (mainly seen in histological sections) along with fibroblasts and collagen fragments. However, these multinucleated giant cells with nucleoli similar to RS cells are also seen in subtypes of NHL like Diffuse large B-cell lymphoma, Peripheral T-cell lymphoma NOS and Anaplastic large cell lymphoma. The distinction between HL and NHL becomes more difficult in the presence of eosinophils, plasma cells and epithelioid cells (seen commonly in T-cell lymphoma). Therefore, excision biopsy and immunohistochemical studies are done to aid in the diagnosis of these cases.

Histologically, the lymph node is partially or totally effaced. Capsule shows thickening with multiple broad sclerotic bands extending into the parenchyma resulting in formation of nodules. This sclerosis can be minimal in some cases though, suggesting that a minimum of single fibrous band is needed for the diagnosis of NSHL. Within the nodules, there are lacunar cells along with small lymphocytes, plasma cells, eosinophils, neutrophils and histiocytes. There can be central necrosis present. The lacunar cells can be present singly or in aggregates. Diagnostic Reed- Sternberg cells are not commonly seen.

NSHL is graded into 2 types, NS1 and NS2. It is assigned as grade 2 if: 1) 25% of cellular nodules contained numerous bizarre and highly anaplastic Reed-Sternberg cells or variants, without depletion of lymphocytes. 2) 25% of cellular nodules showed lymphocyte depletion, irrespective of whether the neoplastic cells appeared uniform or anaplastic. 3) 80% of cellular nodules showed a fibrohistiocytic pattern (many histiocytes and fibroblasts, with relatively few lacunar or Reed-Sternberg cells)⁸.

The unusual features in the present case were multiple skin lesions (seen commonly in NHL) and absence of any fibroblast or collagen fragments on FNA smears.

CONCLUSION:

Nodular sclerosis Hodgkin lymphoma poses a cytological diagnostic dilemma specially in absence of sclerosis on FNA, making histological examination and IHC mandatory.

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