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Extra-nodal primary diffuse large B-cell lymphoma of the maxilla. Fine needle aspiration cytology

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SUMMARY

A 76-year-old female presented at University hospital of Crete with a large painless mass (d<10 cm) of the left maxilla.

The cytologic diagnosis in FNAB smears was of a diffuse large B-cell lymphoma of the maxilla that was confirmed histologically.

The fine needle aspiration cytology (FNAC) in conjunction with immunocytochemistry can distinguish between benign and malignant lymphoid infiltrates and support a diagnosis of extra-nodal diffuse large B-cell lymphoma.

Key words: FNAC, NHL, diffuse large B-cell lymphoma (DLBCL), maxilla.

INTRODUCTION

Lymphomas are a diverse group of neoplasm's affecting the lympho reticular system. Lymphomas have been traditionally divided into Hodgkin's disease and non Hodgkin's disease. Hodgkin's disease often presents as nodal disease, commonly involving cervical, axillary and inguinal nodes. Whereas non Hodgkin's disease may develop extra-nodally, outside the lymphoid system and can occur in the stomach, salivary glands and rarely in the oral cavity and jaws (1, 2).

FNAC in conjuction with immunocytochemistry, is a useful method for the diagnosis of an extra-nodal primary large B-cell lymphoma.

Although FNA cytology potentially provides a convenient, safe and affective approach for the diagnosis of DLBCL, histological confirmation and clinical correlation with the patient's history are essential.

Fine needle aspiration cytology (FNAC) was instituted in the 1920's as a routine procedure. Since then the role of cytomorphology has been discussed and for some pathologists the concept of diagnosing and subclassifying NHL on basis of FNAC is still beyond imagination (3). However, several studies in the recent years have shown that FNAC is a powerful tool in the diagnostic work-up of malignant lymphoma (4, 5).

This case describes about a primary diffuse large B-cell lymphoma involving the maxilla, diagnosed in FNAC smears.

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CASE REPORT

A 76-year old female presented in September 2011 at University hospital of Crete, with a large, painless tumor in the region of the left maxilla. On physical examination, the skin overlying the tumor was normal. No other tumors were identified on the face, scalp or neck. Imaging studies of the face showed evidence of neoplasm of the left maxilla. The past medical history was not significant. A fine needle aspiration (FNA) biopsy of the tumor was performed using a 25-gauge needle. Both air dried and alcohol-fixed smears were prepared. Air dried smears were stained with Giemsa and alcohol-fixed with Papanicolaou stain (Fig.1).

The observation of aspiration smears revealed the massive presence of large atypical lymphocytes with visible multiple nucleoli. Among these large cells, mature lymphocytes were observed.

An immunocytochemical study was carried out in air dried aspiration smears, showing that these

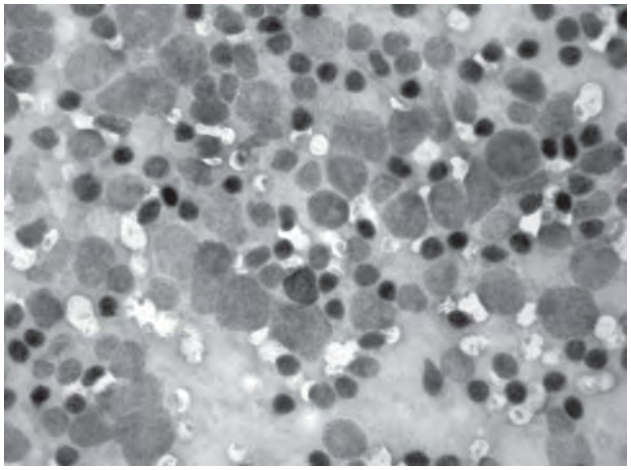

Fig. 1. FNAB. Large atypical lymphocytes with visible multiple nucleoli. Among these large cells, mature lymphocytes. PAP stain x600.

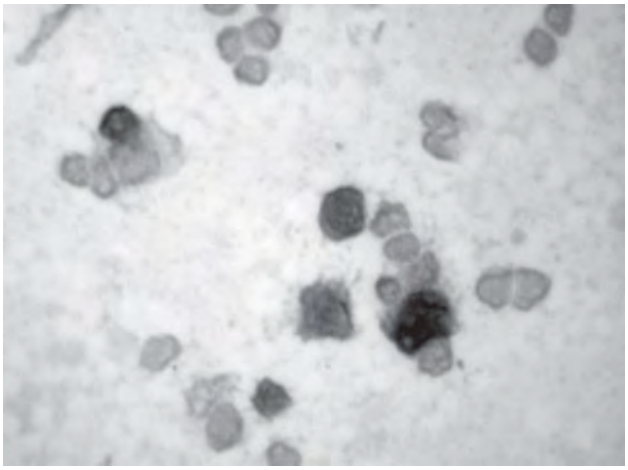

Fig. 2. FNAB. Large lymphocytes of B origin. PAX5 immunostain x600.

large lymphocytes were of B origin: CD20 and Pax5 (Fig.2) were strongly positive and OPD4, CD15 and CD30 negative. The cytological diagnosis was of a diffuse large B-cell lymphoma of the maxilla.

Then a biopsy of the tumor was performed and histology confirmed the cytological diagnosis. In biopsy specimens large atypical lymphoid cells centroblastic and immunoblastic with multiple and visible nucleoli and a population of mature lymphoid cells were observed in H-E stain (Fig.3).

Immunohistochemically the tumor cells were CD20 (Fig.4), CD79a, bcl-6, bcl-2 and MUM-1 positive and CD10, CD30, CD5 negative.

The proliferation index Ki-67 was positive in 40% of neoplastic cells.

DISCUSSION

Non-Hodgkin lymphoma of bone represents 2% of primary bone tumors and 5% of all primary extranodal non Hodgkin's lymphomas. The oral cavity is involved by DLBCL in 0,1% of cases and occasionally the DLBCL appears in the maxilla. There is a male predominance of diffuse large B-cell lymphoma. Swelling of the jaw (58%), pain (55%), and mental dysesthesias or numbness (20%) are the most common presentations in the rare cases published in the literature (6,7). Less frequent complaints include loosening of the teeth, poor dentition or persistent swelling and pain following dental extraction.

The radiologic features of this rare entity include disfunction of bone, bone destruction or sclerosis, resorbtion of the root of the teeth, destruction of the buccal cortex, or pathological fractures (8).

Cytologic diagnostic accuracy in FNAB smears is best in small lymphocytic lymphoma, lymphoplasmablastic lymphoma, Burkitt's lymphoma, mantle cell lymphoma, and plasmacytoma (100%), intermediate in DLBCL (62%) and poor in marginal zone lymphoma (33%) (9,10).

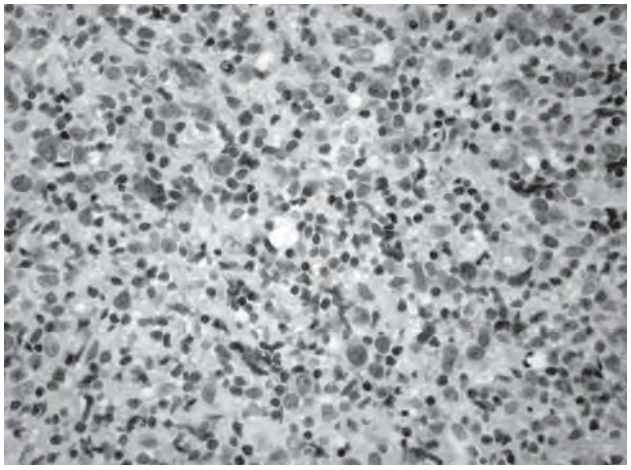

Fig. 3. Tissue section. Large atypical lymphoid cells centroblastic and immunoblastic with multiple and visible nucleoli and a population of mature lymphoid cells. H-E stain x400.

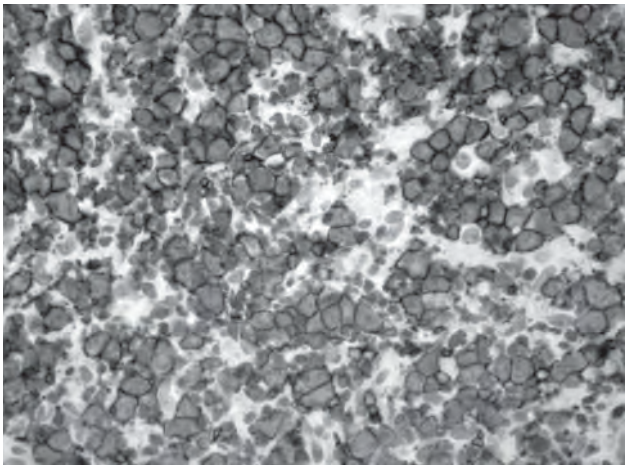

Fig. 4. Tissue section. Tumor cells were CD20 positive. CD20 immunostain x400.

The cytologic differential diagnosis of DLBCL includes Hodgkin's disease, T-cell lymphoma, ki-1 anaplastic lymphoma but can be distinguished from these entities with application of appropriate immunocytochemical panel (11).

In our case the atypical lymphocytes showed a B-cell immunophenotype that was positive for both CD20 and Pax5 and negative for OPD4, CD15 and CD30.

Immunohistochemically the neoplastic cells were positive for CD20, CD79a, bcl-2, bcl-6, and MUM-1 and negative for CD30, CD5, CD10, and LMP-1. The small mature lymphocytes were positive for CD3. The proliferation index ki-67 was expressed in 40% of neoplastic cells.

CONCLUSION

An accurate morphologic and immunophenotypic diagnosis of DLBCL is essential for appropriate patient management. Fine-needle aspiration (FNA) cytology in conjunction with immunocytochemistry, has been shown to be very useful for accurate diagnosis and subclassification of extra-nodal diffuse large B-cell lymphoma in the REAL/WHO classification.

REFERENCES

1. Kini R, Saha A, Naik V. Diffuse large B-cell lymphoma of mandible: a case report. *Med Oral Pathol Cir Bucal* 2009;14: 421-4.
2. Wolvius EB, van der Valk P, van der Wal JE, van Diest PJ, Huijgens PC, van der Waal I, et al. Primary extranodal non-Hodgkin's lymphoma of the oral cavity. an analysis of 34 cases. *Eur J Cancer B Oral Oncol* 1994;30B:121-5.
3. Bangertert M, Brudler O, Heinrich B, Griesshammer M. Fine needle aspiration cytology and flow cytometry in the diagnosis and subclassification of non-Hodgkin's lymphoma based on the World Health Organization classification. *Acta Cytol* 2007;51:390-98.
4. Bhatia A, Saikia UM, Kumor Y, and Dey R. Fine needle aspiration cytology of spindle cell variant of diffuse large B-cell lymphoma: a diagnostic dilemma. *Cytopathology* 2008;19:197-99.
5. Daneshbad Y, Omidvari S, Daneshbad V, Nebahban S, Dehghani M. Diffuse large B-cell lymphoma of thyroid as a masquerader of anaplastic carcinoma of thyroid, diagnosed by FNA: a case report. *Cytojournal* 2006;3: 23-6.
6. Pazoki A, Jansiyanont P, and Ord RA. Primary non Hodgkin's lymphoma of the jaws: report of 4 cases and review of the literature. *J. Oral Maxillofac Surg* 2003;61:112-7.
7. Stein ME, Kuten A, Gez E, Rosenblatt KE, Drumea K, Bensachar M, et al. Primary lymphonma of bone: a retrospective study. Experience at the Northern Israel Oncology Center (1979-2000). *Oncology* 2003;64:322-7.
8. Rosado MF, Morgensztern D, Peleg M, Lossos IS. Primary diffuse large cell B-cell lymphoma of the mandible. *Leuk Lymphoma* 2004;45:1049-53.
9. Mourad WA, Tulbah A, Shoukri M, Al Dayel F, Akhtar M, Ali MA, et al. Primary diagnosis and REAL/WHO classification of non-Hodgkin's lymphoma by fine-needle aspiration: cytomorphologic and immunophenotypic approach. *Diagn Cytopathol* 2003;28:191-5.
10. Dang HY, Harris NL, Preffer FI, Pitman MB. Fine-needle aspiration biopsy in the diagnosis and classification of primary and recurrent lymphoma: a retrospective analysis of the utility of cytomorphology and flow cytometry. *Mod Pathol* 2001;14:472-81.
11. Hoda RS, Picklesimer L, Green KM, Self S. Fine-needle aspiration of a primary mediastinal large B-cell lymphoma: a case report with cytologic, histologic and flow cytometric considerations. *Diagn Cytopathol* 2005;32: 370-3.

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