Situated among the rare bone tumors, the primary diffuse large B-cell lymphoma occupies a well-worth place in doctor's attention given the difficulty of diagnosis and the specific treatment, as well as the high lay time in showing of the clinical features. Biopsy followed by immunohistochemistry is the gold standard in investigations. The presentation that follows shows a rare case of the primary diffuse large B-cell lymphoma in the humerus. To the best of our knowledge this is the first case reported in the Romanian medical literature.

Keywords: non-Hodgkin lymphoma, bone tumors, immunohistochemistry

Introduction

In Romania the bone tumors represent a 1.5% of all tumors followed in frequency by the genital, digestive and respiratory tumors. Primary lymphoma of the bone (PLB) originates in the medulary cavity and presents as a single and localised lesion. It represents approximately 3% of the malignant bone tumors and 1% of the malignant lymphomas [1]. PLB was for the first time described by Oberling in 1928 [2] and is an extremely rare disease so there are no established specific therapeutic guidelines [3]. Due to the rarity of these tumors there are only very few retrospective studies regarding prognosis and treatment [4]. The criteria for the PLB include: the primary site of the tumor which originates in the bone marrow and no other organ involvement for six months post diagnosis [5]. PLB is a rare neoplasm and therefore the difficulty in the recognition and diagnosis [6].

Case Presentation

A 77 years old patient from urban area was admitted to our department with pains at the right shoulder. The pain was profound and did not disappeared with the administration of antialgics and secondary functional impairment. The physical examination revealed localised muscle hipothony with impaired movement of the right shoulder and hepatomegaly 1 cm under the costal bord. No peripheral lymphadenopathy was found. The rest of his physical examination was within the normal limits. Originally he was diagnosed as having an inflammatory process with blood erythro-sedimentation 16mm/hour but with negative C reactive protein. Chest X-Ray was normal. The radiografy of the right shoulder showed osteolysis at the proximal right humerus 5X4 cm in size (Figure 1).
For the establishment of the diagnosis an explorative biopsy of the tumor was performed. The histological examination of the tumor fragment revealed a diffuse infiltration of relatively large cell size. The tumor cells had round nuclei which appeared vesicular with no prominent nucleoli. The cytoplasm was moderately abundant (Figure 2, A and B). Immunohistochemical stains for common leucocytic antigen (LCA) and CD 20 resulted positive in the tumor cells (Figure 3).

In order to exclude a metastatic carcinoma cytokeratin AE 1 and AE 3, CK 7, CK 20, TTF-1 were performed and resulted negative in the tumor cells. Neuroendocrine markers, chromogranin, sinaptophysin and neuro specific enolase (NSE) were negative as well. The LCA and CD 20 positivity along with the cellular morphology, confirm the diagnosis of primary diffuse large B-cell lymphoma of the humerus. The patient was transferred to the oncology department for specific treatment.

**Discussions**

The clinical presentation of this case was initially a tumor of the humerus. The imaging investigation revealed no other pathologies and no lymphadenopathy.

Due to the site of the tumor it was thought to be an osteosarcoma. The morphology along with the immunohistochemical negativity CK20, CK7 and TTF-1 (thyroid transcription factor 1) excluded osteosarcoma and metastatic carcinoma.

The morphological features of the tumor cells raised the possibility of a neuroendocrine tumor but with the NSE, chromogranin and sinaptophysin negativity it was
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**Case Presentation**

excluded as well. The diffuse pattern with LCA and CD-20 positivity established the diagnosis of primary diffuse large B-cell lymphoma.

Primary bone lymphoma is a rare entity. The patient sometimes complain about local pain, with swelling of the region. The pathological fractures of the femur and humerus are well documented in literature; however primary lymphoma at these sites are rare [7]. The delay in clinical symptoms represents a difficulty in the diagnosis. The delay in diagnosing these cases can have serious impact on the outcome [8].

Revising the diffuse B-cell lymphomas published in literature since 1970 until present, we discovered 25 cases, ours being the 26th (Table I).

**Conclusions**

The diagnosis of the bone tumors always requires an interdisciplinary cooperation of the clinicians, radiologist and anatomo-pathologist.

To the best of our knowledge this is the first case in Romania.

**References**
