Case Report

Diffuse Large B-Cell Lymphoma with Calf Muscle Localization

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Although diffuse large B-cell lymphoma (DLBCL) usually occurs in the lymph nodes, approximately 30–40% of the time it can have an extranodal site of involvement and it can arise in nearly every body site such as intestine, bone, breast, liver, skin, lung, and central nervous system. Muscle involvement of DLBCL is especially uncommon, comprising 0.5% of extranodal NHL. We report a case of a 72-year-old man with extranodal DLBCL of a unique manifestation in the calf muscle, involving predominantly the gastrocnemius muscle. The patient achieved complete response and remained free of local recurrence or metastasis following diagnosis.

1. Introduction

Non-Hodgkin’s lymphoma (NHL) is the most common form of lymphoma, with an estimated 65,980 new cases of NHL diagnosed in America during 2009, resulting in approximately 19,500 NHL deaths [1]. Diffuse large B-cell lymphoma (DLBCL) is the most common form of NHL, accounting for more than one-third of all lymphomas [2]. Although DLBCL usually occurs in the lymph nodes, it can arise in other tissues such as intestine, bone, breast, liver, skin, lung, and the central nervous system. Muscle involvement of DLBCL is especially uncommon, comprising 0.5% of extranodal NHL [3]. Although extranodal DLBCL can involve virtually any muscular structure, calf localization has not yet been reported. Here, we present a case report of a unique manifestation of DLBCL in the calf muscle, involving predominantly the gastrocnemius muscle.

2. Case Report

A 72-year-old male initially presented to his general practitioner with complaints of right calf pain and swelling that started while doing maintenance on his roof. Physical examination revealed a firm mass in the right calf, measuring approximately 10 cm, nontender, with no warmth or erythema. Distally, the calf was grossly neurovascularly intact, with no inguinal adenopathy. Magnetic resonance imaging (MRI) of the right calf showed diffuse increased signal intensity of the medial gastrocnemius muscle that was associated with a central 3 cm region of abnormal signal intensity, possibly due to contusion and muscular injury. A repeat MRI in one or two months was advised to ensure stability of the findings. The repeat MRI showed marked enlargement, to 11.5 × 6.0 × 8.5 cm, of the mass involving the medial gastrocnemius muscle, suspicious for sarcoma (Figure 1). The adjacent osseous structures appeared intact and demonstrated no evidence of destructive changes to the bone. A whole-body FDG-PET scan revealed intense activity that involved the right gastrocnemius muscle, with no abnormal activity in the chest, abdomen, or the remainder of the lower extremities.

An incisional biopsy was obtained from the mass and stained with hematoxylin and eosin and immunostains specific to certain cancers. The biopsy tissue contained diffuse infiltrate of large malignant cells with a high nucleus-to-cytoplasm ratio and scanty cytoplasm. In addition, the nuclei were round, with prominent nucleoli and high mitotic activity. The differential diagnosis based on morphology included sarcoma, Merkel cell carcinoma, and lymphoma. Immunoperoxidase staining results were consistent with
Figure 1: MRI of the lower extremities with right leg mass involving the medial gastrocnemius muscle.

Table 1: Immunoperoxidase stains.

| Antibody                | Result                      |
|-------------------------|-----------------------------|
| Pancytokeratin          | Negative                    |
| CD3                     | Scattered cells stained     |
| CD20                    | Strongly positive           |
| CD79a                   | Weakly positive             |
| Synaptophysin           | Negative                    |
| Ki67                    | 70% of cells stained        |
| CD99                    | Negative                    |
| S100 protein            | Negative                    |
| Epithelial membrane antigen | Negative                  |

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