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Unusual presentation of diffuse large B-cell lymphoma involving the talus:-A case report-

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Abstract: *Lymphoma involves malignancy of the lymphatic system which includes the spleen, thymus, bone marrow and lymph nodes. Diffuse large B-cell lymphoma (DLBCL) is an aggressive, rapidly-growing type of non-Hodgkin lymphoma (NHL). In the present case report, a 59-year-old female patient presented with long-term inflammatory pain of the right talus. Magnetic resonance imaging (MRI) was obtained which revealed tissue lesion infiltrating a large part of the talus, with cortical rupture and infiltration of the anterior and posterior soft tissues. Due to concern for malignancy, the patient underwent a computed tomography-guided biopsy of the tissue lesion, and the pathology report confirmed the diagnosis of diffuse large B cell lymphoma (DLBCL). Chest, abdomen and pelvic CT scan showed: bilateral ovarian tumor process, locally advanced on the right, associated with supra- and subdiaphragmatic, right renal, left adrenal and peritoneal lymph node involvement which was consistent with Diffuse Large B-cell lymphoma, Stage IV. The patient underwent 8 cycles of chemotherapy with intrathecal methotrexate. The patient's pain and swelling to the hindfoot had completely resolved and the patient remains in remission.*

Keywords: Lymphoma, talus, diffuse large B-cell lymphoma, Malignant.

Introduction:

Lymphoma usually occurs when cells, specifically lymphocytes, grow uncontrollably within the lymphatic system, specifically in the lymph nodes. It's classified into Hodgkin (HL) and non-Hodgkin lymphoma (NHL) (1) . Diffuse large B-cell lymphoma (DLBCL) is the predominant type of NHL, approximately 40% of all lymphomas (2) (3). It's characterized by a diffuse proliferation of large and mature B-cells. These cells usually are larger than, or equal to, twice the normal size of macrophages or lymphocytes(4). DLBCL can affect patients of all ages; however, most patients are over the age of 60 at diagnosis and are predominantly male (55%) (5) (6) (7). DLBCL can begin in the lymph nodes or in extranodal sites such as the central nervous system, gastrointestinal tract, liver, bone or basically any organ of the body (8) (5) (9) . Reported bone involvement of diffuse large B-cell lymphoma (DLBL) is in the femur (27%), pelvis (15%), tibia/fibula (13%), polyostotic (13%), humerus (12%), spine (9%), other (5%), mandible (2%), radius/ulna (1%), scapula (1%), and skull (1%). Uncommonly, bones of the hands and feet are involved (10).

Although NHL is a common type of lymphoma in adults, it is a relatively uncommon pedal neoplasm (11) .

In this report, we describe a situation involving a female aged 59 who received a diagnosis of diffuse large B-cell lymphoma, initially manifesting in an unusual extranodal presentation. Utilizing MRI, the painful underwent thorough assessment, revealing a strong suspicion of malignancy. Consequently, biopsies were conducted, leading to a final pathological confirmation of DLBCL.

Case report:

A 59-year-old woman presented with generalized inflammatory right ankle and heel pain over the past six months. She had no prior injury or trauma to the right lower limb. The patient presented with no constitutional symptoms, including unintentional weight loss, night sweats or fever. She had no known drug allergies and was not taking any medications. Her family history was not known to have cancer.

On clinical examination, she was found to be in good health. Physical examination of the right foot revealed pain on palpation of the right ankle. Moderate edema and erythema were observed on the lateral side of the right foot (Figure 1). The abdomen was soft and there was no hepatomegaly or splenomegaly. The lymph nodes were not palpable and there was no evidence of any regional adenopathy. Radiographic examination consisted of multiple images of the foot and ankle, which revealed no evidence of bone pathology related to the area of pain and swelling.

Magnetic resonance imaging (MRI) of the right foot revealed: a tissue lesion infiltrating a large portion of the talus with cortical disruption and infiltration of anterior and posterior soft tissues (figure 2). CT-guided biopsy of the right talus revealed a proliferation of large, highly pleomorphic cells. Immunohistochemistry revealed diffuse positivity for CD20 and negativity for CD3. The Ki-67 was approximately 80%. Additional immunophenotyping showed CD10 negativity, consistent with a non-germinal center B-cell DLBCL. On laboratory examination, the patient presented with a regenerative anemia of 7.8 g/dL normochromic normocytic. Other blood cells showed no abnormalities. Renal and liver function tests were normal.

The patient also had an elevated LDH of 720 units/L. The patient tested negative for viral markers of HIV, hepatitis B and hepatitis C.

CT scan of the thorax and abdomen showed: bilateral ovarian tumor process, locally advanced on the right, associated with supra- and subdiaphragmatic, right renal, left adrenal and peritoneal lymph node involvement.

The patient was finally diagnosed with stage IV disease according to Ann Arbor staging, IPI 3, intermediate-high risk group.

She was then treated with 8 cycles of combination immunochemotherapy consisting of rituximab and standard-dose cyclophosphamide, doxorubicin, vincristine and prednisone (CHOP), plus four prophylactic intrathecal administrations of methotrexate. The PET scan showed a complete response to treatment, with no signs of disease after the chemotherapy cycles. She is currently alive, in complete remission and asymptomatic 14 months after disease onset.

Discussion:

Lymphoma is a category of cancers that affects the lymphatic system. The two main kinds of lymphoma are Hodgkin's Lymphoma which spreads in an organized manner from one group of lymph nodes to another, and non-Hodgkin's lymphoma which spreads through the lymphatic system in a non-organized manner(12). DLBCL, the most common type of NHL, comprises a group of large, lymphoid B-cell malignant proliferations that is clinically, morphologically, and genetically heterogeneous. It is also characterized by relatively frequent extranodal presentation. The most common extranodal localizations are the stomach, central nerve system, bone, testis, and liver (13). In our case, only extranodal areas affecting talus and ovarian were affected with DLBCL.

The etiology of lymphoma is not fully understood but there have been links to lymphoma to certain viral infections, for example, human immunodeficiency virus (HIV) and Epstein Barr virus (12). Two molecular subtypes of DLBCL have been accepted including the germinal center Bcell (GCB) type and the activated B-cell form (ABC) which are associated with specific genetic alterations, different molecular signaling pathways and different clinical outcomes (12).

The skeletal system is an uncommon site of lymphoma involvement and DLBCL is rarely found in the foot and ankle. When lymphoma occurs within the musculoskeletal system it likely represents secondary hematologic spread(14).

The patient's symptoms can vary from vague or diffuse bone pain, soft tissue swelling, to a pathologic fracture(15) . Radiographic features of lymphoma involving osseous structures are variable and sometimes can appear normal, lytic or sclerotic. Other imaging modalities can be very useful such as bone scan or MRI as lymphoma involving bones can have a normal or very subtle appearance on radiographs (7) (14).

Once a neoplasm has been identified it is important to perform a thorough history and physical examination with a focus on constitutional symptoms as well as identify if any other locations are involved (7).

PET scans also play an integral role in the initial staging of lymphoma, detecting other sites that may not be seen on other imaging modalities as well as treatment response. PET scan has an advantage over CT/MRI because of its ability to decipher between active, viable tumor and necrotic tumor that have responded well to treatment (14).

Age, tumor size, lactate dehydrogenase level, and performance status of the patient can significantly influence prognosis (16)

In our patient, DLBCL was first diagnosed in the right ankle but unrevealed lymphoma involvement on the were subsequently detected on ovarian and abdomen lymph by whole-body CT scanning. PET-scan was not performed due to lack of facilities.

Currently, R-CHOP chemotherapy is the most effective treatment choice with respect to patient outcomes (17). The combination of R-CHOP chemotherapy regimen has shown improvement in patients with diffuse large B cell lymphomas compared with CHOP alone (18).

The R-CHOP chemotherapy regimens are a standard treatment of non-Hodgkin lymphoma. The patient completed 8 courses of chemotherapy and did not show any evidence of recurrence, relapse during treatment and after 14 months of treatment on clinical examinations and on follow up imaging studies.

Conclusion:

In this specific case overview, as is applicable to any form of cancer, it is essential to acquire additional diagnostic imaging if persistent symptoms are present, perform a biopsy for a conclusive diagnosis, and approach treatment through a multidisciplinary method.

Figure 1: edema noted to the lateral aspect of the hindfoot.

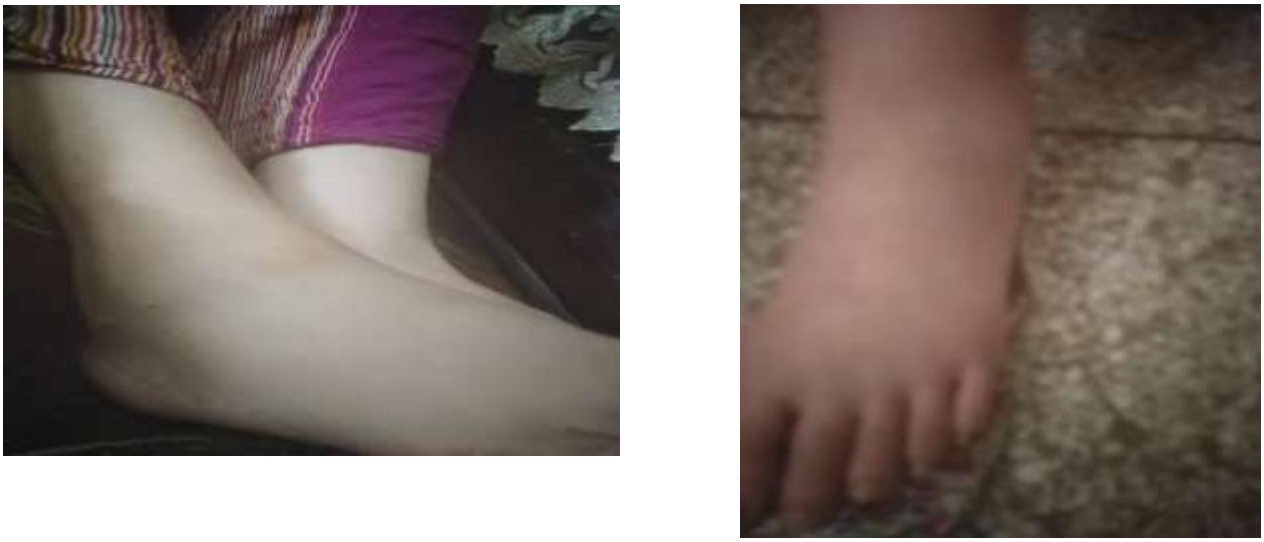
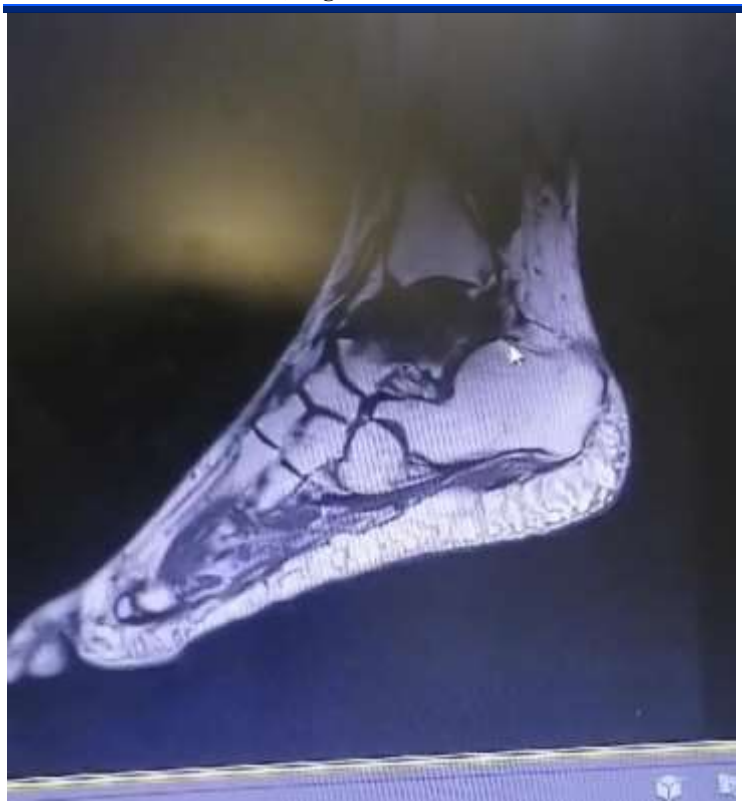


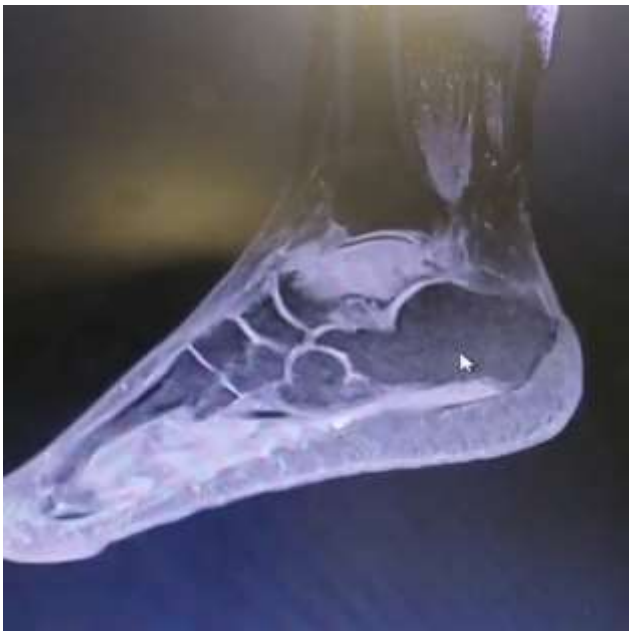
Figure 2 : A, T1 weighted image demonstrating tissue lesion, infiltrating it extensively, respecting some peripheral peripheral areas.

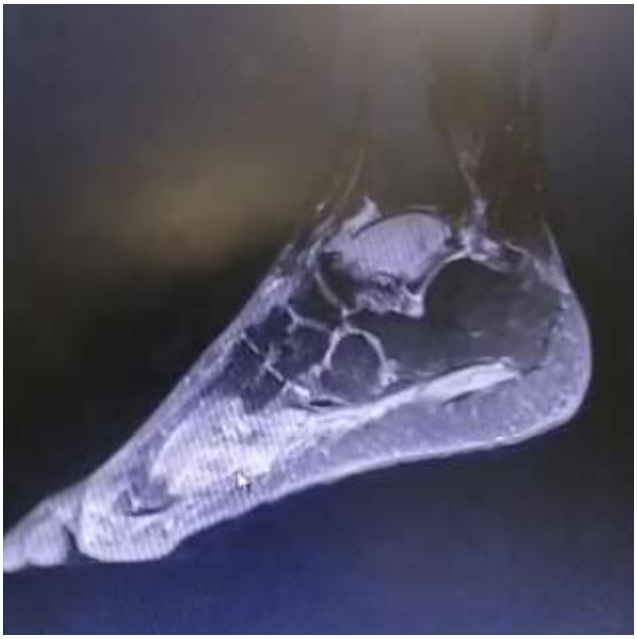


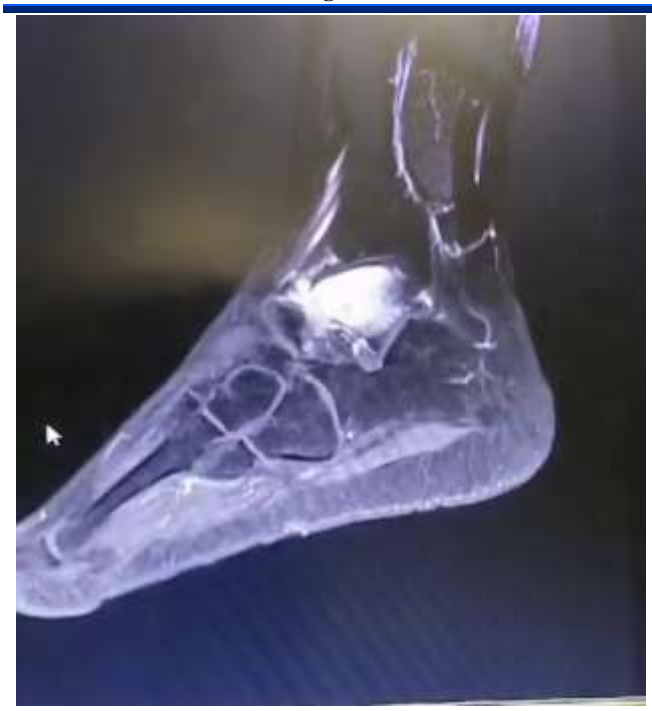
B : T2 weighted image show an increased signal mass in the talus .

The talus presents a tissue lesion that infiltrates it extensively, respecting some peripheral areas.

It measures 50 mm anteroposteriorly, 26 mm vertically and 30 mm transversely plane.







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