



## Case Reports

# An unusual case of late recurrent Hodgkin lymphoma presenting with soft tissue masses

June 30, 2015 [Case Reports, Issues, July-September 2015: Volume 7 Issue 3](#)

**Keywords** [hodgkin lymphoma](#)

Aileen Deng M.D., Asad Javad M.D., Guldeep Uppal M.D., Margaret Kasner M.D.

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Case report

Department of Internal Medicine

Thomas Jefferson University Hospital

Corresponding author:

Aileen Deng M.D.

833 Chestnut Street Suite 701

Philadelphia, PA 19107

732-547-0531

[Aileen.deng@jefferson.edu](mailto:Aileen.deng@jefferson.edu)

Hodgkin lymphoma remains primarily a nodal disease. Extranodal involvement in Hodgkin lymphoma is less common than that seen in non-Hodgkin lymphoma. In particular, extranodal Hodgkin lymphoma involving soft tissues is extremely rare. We report a case of extranodal Hodgkin lymphoma involving breast and thigh tissues in a 72 year-old female. CAT scan showed a complex mass like area centered around the distal aspect of the vastus medialis. Ultrasound showed an ovoid solid and cystic mass in the right breast. This case illustrates that, while rare, Hodgkin lymphoma can manifest as soft tissue masses.

## An Unusual Presentation of Late Relapse Hodgkin Lymphoma with Thigh and Breast Masses

### Introduction

Hodgkin lymphoma is a potentially curable lymphoma with a reported five-year event-free survival ranging between 80% and 90% with combined chemotherapy and radiotherapy[1]. However, 10% to 15% of patients with localized and 25% to 30% with disseminated classical Hodgkin lymphoma fail to respond or relapse after primary conventional treatment[1,2]. Late relapse of Hodgkin's lymphoma more than 5 years after complete remission following radiation therapy occurs in 5% to 10% of patients, and is more commonly seen following combined modality therapy[3]. While extra nodal involvement of Hodgkin lymphoma can occur in up to 30% of cases, skin and musculoskeletal involvement are extremely rare[4]. We report a case report of late relapse of Hodgkin lymphoma presenting with breast and thigh mass.

## Case Presentation

A 72 year-old Caucasian female presented with a progressively enlarging left thigh mass associated with localized pain and fevers. Approximately 3 months prior to presentation, the patient initially noted a skin nodule on her left anterior thigh. The patient reported that, since then, the overlying skin nodule had gradually enlarged into a palpable, painful mass.

The patient has a history of stage IIA nodular sclerosing Hodgkin lymphoma that presented with mediastinal adenopathy and was diagnosed ten years prior to her current presentation. It was treated with doxorubicin, bleomycin, vinblastine, and dacarbazine (ABVD) chemotherapy regimen and involved-field radiotherapy. In addition, she has a history of diffuse large B-cell non-Hodgkin lymphoma, lymphomatoid granulomatosis that was diagnosed 5 years prior to presentation and treated with rituximab plus cyclophosphamide, doxorubicin, vincristine, and prednisone (RCHOP) chemotherapy regimen.

On presentation she had a soft, palpable left inguinal lymph node and a firm left thigh mass with overlying skin changes. The overlying skin had a large area of central necrosis and erosion and a surrounding erythematous, maculopapular rash. In addition, she had a firm mass in the right breast with no overlying skin changes.

Lab work included a white blood cell count of 7.5 B/L, hemoglobin of 11.4 g/dL, hematocrit of 34.1% and platelet count of 142 B/L.

CT of the left knee showed a complex mass like area centered around the distal aspect of the vastus medialis with no definite involvement of the underlying femur (Figure 1). Patient underwent image-guided core biopsy of the soft tissue mass.

Surgical pathology of left thigh mass revealed recurrent classical Hodgkin lymphoma (Figure 2A-2B). On microscopy, the section revealed cores of soft tissue with atypical nodular lymphocytic infiltrate. Scattered large atypical cells were present within the infiltrate. The atypical large cells were positive for CD30. The background lymphocytes were predominantly T cells, positive for CD3.

Ultrasound of breast mass showed ovoid solid and cystic mass measuring 2.4 x 0.9 x 1.9 centimeters at the 12:00 position 6 cm from the nipple (Figure 3). Subsequently, patient underwent ultrasound-guided core biopsy of the right breast mass.

Pathology of the right breast mass revealed recurrent classical Hodgkin lymphoma (Figure 2C-2D). On microscopy, core biopsy revealed breast parenchyma with atypical lymphoid infiltrate. The infiltrate showed a small number of atypical large cells admixed with lymphocytes and histiocytes. The atypical large cells were positive for CD30. The background lymphocytes were T cells that were positive for CD3.

CT scan of chest, abdomen and pelvis were completed for staging. It revealed new and increased nodules in the left lung, a soft tissue density mass along the superior aspect of the right breast, splenomegaly with no focal splenic lesions, left groin adenopathy and matted soft tissue mass in the left groin with associated subcutaneous edema extending the left lower extremity.

Patient was started on ICE (ifosfamide, carboplatin, and etoposide) regimen. She completed three cycles ICE, followed by maintenance brentuximab. Unfortunately, she has since developed progressive disease.

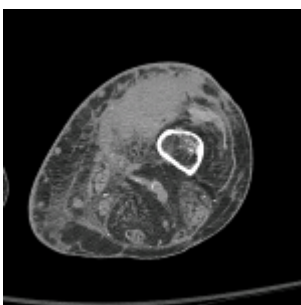


Figure 1: CT scan of left knee with nodular mass-like area in the medial left thigh centered at the distal aspect of the vastus medialis

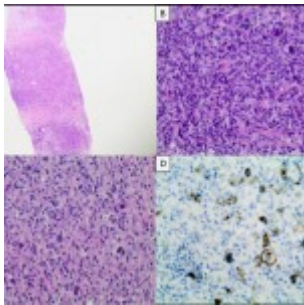


Figure 2A: Core biopsy of the thigh mass, vaguely nodular atypical lymphoid infiltrate (H & E stain, 200x original magnification)

Figure 2B: Core biopsy of the thigh mass, scattered mononuclear Hodgkin cells (green arrows) and Mummified cells (black arrows) in a mixed inflammatory background (H & E stain, 4000x original magnification)

Figure 2C: Core biopsy of the breast lesion, showing identical morphology to thigh biopsy with scattered Hodgkin cells against a polymorphic background (H & E stain, 4000x original magnification)

Figure 2D: Core biopsy of the breast lesion, scattered Hodgkin cells with membrane and Golgi zone staining with CD30 antibody (CD30 immunostain, 4000x original magnification)

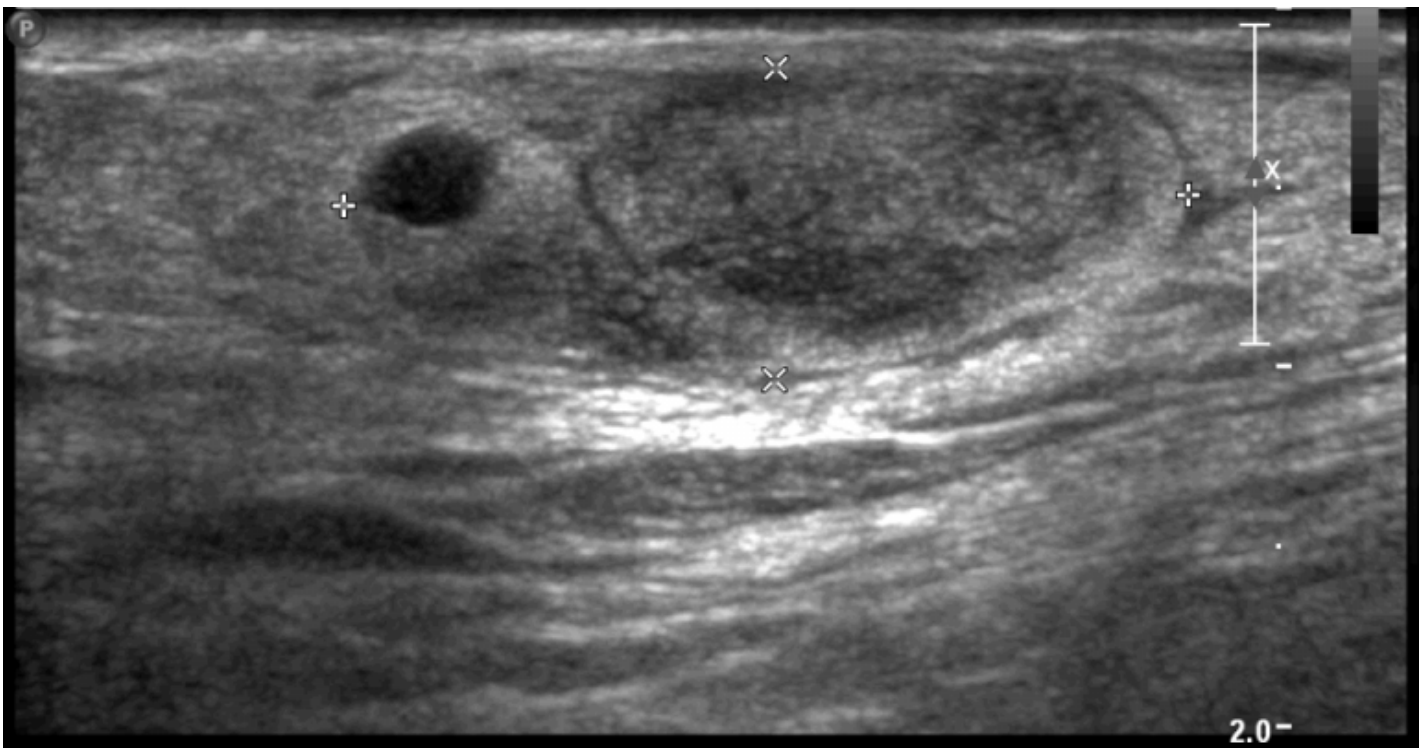


Figure 3: Ultrasound of right breast with an ovoid solid and cystic mass

## Discussion

Classical Hodgkin's lymphoma tends to cause mass lesions, most commonly in the centriaxial lymph nodes, but occasionally in other organs[5]. At the time of diagnosis, the majority of patients with Hodgkin lymphoma present with supra-diaphragmatic lymphadenopathy. Approximately one-third of patients presents with systemic symptoms including fever, night sweats, weight loss or chronic pruritus[6].

Extranodal presentation of Hodgkin lymphoma with or without lymphatic involvement occurs in 15% to 30% of cases[7]. Hodgkin lymphoma affects extranodal tissues by direct invasion or by hematogenous spread[6]. The most commonly involved extranodal sites include the spleen, lung, liver and bone marrow. Rare cases at other extranodal sites such as skin, brain, gastrointestinal tract, or musculoskeletal tissue constitute less than 1% of Hodgkin lymphoma presentation[4].

Extranodal Hodgkin lymphoma presenting with soft tissue masses is rare. In the review of the literature, only two case reports have been written on Hodgkin lymphoma presenting with soft tissue mass in the extremity. A 33 year-old male presented with numerous soft tissue masses in the subcutaneous tissue of the left arm[8]. MRI imaging revealed multiple soft tissue masses with the largest mass measuring 25 x 35 x 58 mm localized along the neurovascular bundle and the ipsilateral axillary region. Excisional biopsy of a soft tissue mass led to a diagnosis of lymphocyte-rich Hodgkin lymphoma. Another case report described a patient who presented with bilobulated, subcutaneous mass on the medial aspect of the right arm with normal adjacent bone and neurovascular structures[9]. The patient was ultimately diagnosed with lymphocyte-predominant Hodgkin lymphoma.

Extranodal Hodgkin lymphoma presenting with soft tissue masses have been described in other body regions. A 38 year-old Chinese female who presented with pain at the right upper side of the chest and adjacent soft tissue swelling was found to have an osteolytic lesion in the right second rib with an associated large soft tissue mass measuring 6 x 5 x 5 cm in size[10]. She was diagnosed with primary osseous Hodgkin lymphoma. A 68 year-old male presented with a gluteal mass and hypercalcemia[11]. MRI imaging revealed a 15 cm mass infiltrating the gluteal and iliopsoas muscles, which was diagnosed to be nodular sclerosing Hodgkin disease. A 53 year-old Moroccan woman was found to have a mediastinal mass protruding through the sternum, which was later diagnosed as nodular sclerosing Hodgkin lymphoma[12].

Hodgkin lymphoma presenting with soft tissue mass in the breast is rare[13]. Less than 0.5% of all malignant lymphomas have secondary breast involvement[14]. It is more common in metastatic disease versus primary lymphoma[15–17]. In a study looking at 106 patients with breast lymphomas, 1 of the 50 patients with localized breast lymphoma had classical Hodgkin lymphoma while 3 of the 56 patients with disseminated breast lymphoma had classical Hodgkin lymphoma[18]. Few cases report disseminated Hodgkin lymphoma presenting with breast involvement. A 33 year-old patient presented with recurrent Hodgkin lymphoma with disseminated lymphadenopathy, bilateral breast involvement and bone and bone marrow involvement[16]. Ultrasound of the breasts showed multiple hypoechoic solid masses in the left breast and one hypoechoic mass in the right breast. A 25 year-old female with a history of nodular sclerosing Hodgkin lymphoma presented left cervical, axillary, and inguinal lymphadenopathy with left breast mass[19].

Our patient is unique in her presentation and her age. In the review of the literature, our patient is a rare presentation of recurrent Hodgkin lymphoma presenting with thigh and breast mass. Soft tissue masses are more commonly reported with non-Hodgkin lymphoma. However, our case illustrates that Hodgkin lymphoma can also present with soft tissue masses. While most cases of Hodgkin lymphoma presenting with soft tissue masses occurred in younger patients, our case illustrates the possibility of such presentation in older patients. Although rare, in older patients who present with soft tissue masses, Hodgkin lymphoma should be amongst the differential diagnosis.

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