

## BRIEF ARTICLE

## Lobular Panniculitis in a Patient with Chronic Lymphoid Leukemia

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## ABSTRACT

Panniculitis is the inflammation of the subcutaneous fat that presents as red, painful nodules under the skin and may be a manifestation of internal disease. Causes of lobular panniculitis include systemic lupus erythematosus, pancreatic disorders,  $\alpha$ 1-antitrypsin deficiency, or infection. This case discusses a 63-year-old female that presents with lobular panniculitis without vasculitis associated with chronic lymphoid leukemia. Though cutaneous manifestations due to chronic lymphoid leukemia are not uncommon, it is rare to see panniculitis associated with chronic lymphoid leukemia.

## INTRODUCTION

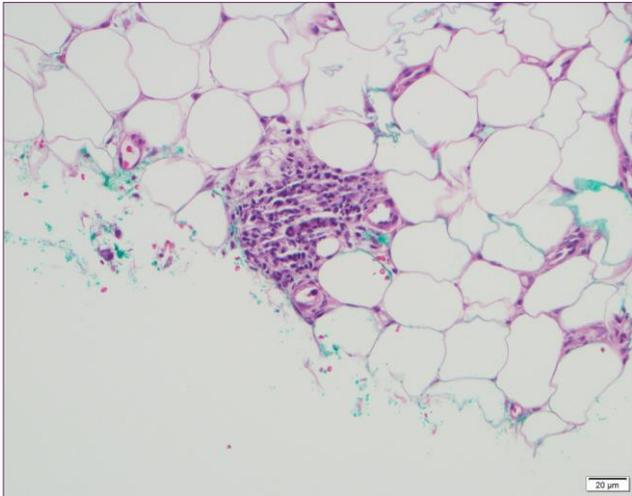
Panniculitis is the inflammation of the subcutaneous fat layer that results in painful nodules under the skin. It is classified into septal and lobular categories with and without vasculitis[1]. Clinically, panniculitis presents as deep seated, red, edematous nodules or plaques that is often the manifestation of internal disease[2]. There are many subtypes of panniculitis with etiologies due to infection, trauma, malignancy, deposition, enzymatic destruction, and inflammatory disease[3]. Diagnosis is made from histopathological findings and clinical presentation[2]. This case report discusses a patient with lobular panniculitis without vasculitis associated with chronic lymphoid leukemia (CLL).

## CASE REPORT

A 63-year-old Caucasian female with chronic lymphoid leukemia (CLL) initially presented

to the dermatology clinic with pink, erythematous nodules on the left lower leg in 2018. She has a history of ductal carcinoma in situ and Paget's disease. A punch biopsy was performed and demonstrated a focal lobular panniculitis on the left lower leg. Beneath a mostly unremarkable epidermis and dermis, there was a focal infiltrate present within the lobules of the subcutis as shown in Figure 1.

At the time, the patient was receiving ABT-199, a clinical trial medication, to treat CLL. The patient was treated with clobetasol 0.05% topical cream and lesions resolved. The patient returned to clinic again in June 2021 reporting the onset of new, pink, erythematous, indurated, subcutaneous nodules on the right lower leg. (Figure 2) The patient reported moderate to severe pain and inflammation. She has been receiving Duvelisib for the past 6 months to treat the CLL. The patient was treated with Kenalog 20 mg/mL intralesional injections in

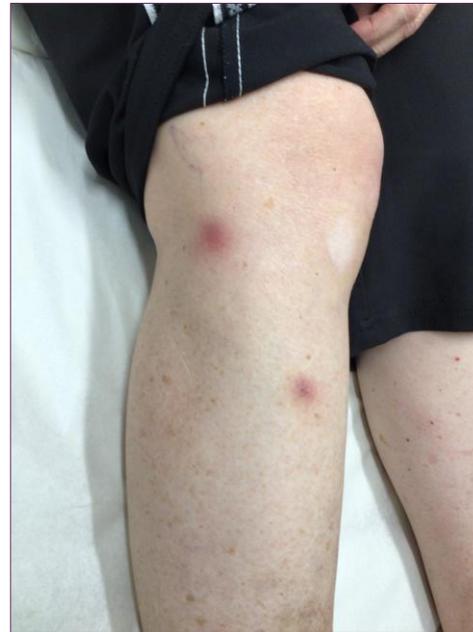


**Figure 1.** Beneath a mostly unremarkable epidermis and dermis, there is a small focus within the subcutis containing a lobular lymphohistiocytic infiltrate (400x)

the right and left lower leg and was prescribed clobetasol 0.05% topical cream. Due to thrombocytopenia, a biopsy could not be performed. To rule out common panniculitis etiologies due to  $\alpha$ 1-antitrypsin deficiency, pancreatitis, tuberculosis, and systemic lupus erythema, laboratory testing was performed. The patient was negative for antinuclear antibody (ANA), rheumatoid factor, QuantiFERON-TB Gold, and  $\alpha$ 1-antitrypsin, ruling out the above listed common etiologies. Upon follow up visit, lesions showed improvement. (Figure 3)

## DISCUSSION

Lobular panniculitis without vasculitis is a subtype of panniculitis that is characterized histologically by few or no inflammatory cells and damage to fat nodules in the subcutis layer[2]. Most commonly, lobular panniculitis without vasculitis is due to sclerosing panniculitis, calciphylaxis, cold panniculitis, systemic lupus erythematosus, pancreatic disease,  $\alpha$ 1-antitrypsin deficiency, dermatomyositis, infections or trauma[3]. Histological differences can be identified due to the varying etiologies.

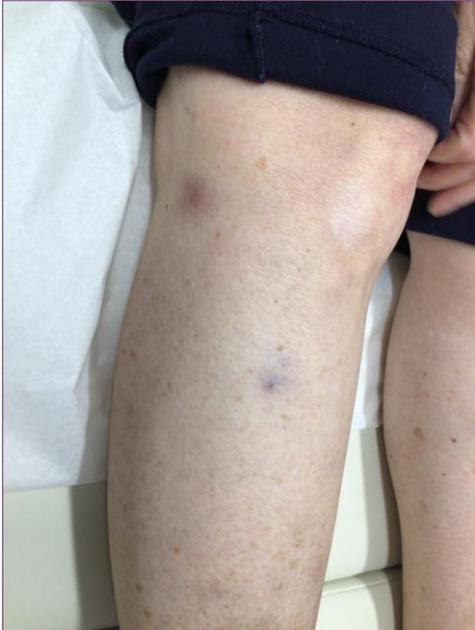


**Figure 2.** Lesions on right lower leg at initial visit in June 2021

Lupus panniculitis is classified by lymphoid follicles, and nuclear dust of lymphocytes.  $\alpha$ 1-antitrypsin deficiency is classified by neutrophils between collagen bundles of the deep reticular dermis. Sclerosing panniculitis is classified by necrosis at the center of the lobule and pancreatic panniculitis is classified by extensive fat necrosis with saponification of adipocytes[3]. These histological differences, along with varying clinical presentations, aid in diagnosis of panniculitis and its underlying cause. The patient's biopsy results were non-specific for panniculitis.

Chronic lymphoid leukemia is an adult leukemia characterized by increased CD5+ and CD23+ B cells in the blood, marrow, and secondary lymphoid tissues and is the most common adult leukemia in the Western World[4]. It is a lymphoproliferative disorder that is initially detected by increased lymphocyte count or B symptoms[4]. CLL presents with primarily hematological manifestations but there have been cases of

initial cutaneous presentations of CLL. In a case series, patients presented with



**Figure 3.** Lesions on right lower leg at follow up visit in July 2021

erythematous plaques, angiomatosis/telangiectasia and erosive skin changes and histological analysis indicated underlying lymphoma in these cases of undiagnosed patients[5]. Additionally, skin complications in patients with established CLL are fairly common with patients presenting with basal cell carcinoma, squamous cell carcinoma, leukemia cutis, and cutaneous drug eruptions[6]. 25% of patients diagnosed with CLL can later present with skin lesions, with leukemia cutis making up 4-27% of those lesions[7]. Leukemia cutis presents as lumps and bumps of various sizes or erythematous lesions, petechiae, ulcerations, blisters with dissemination across the entire body[7]. It is uncommon to have panniculitis due to chronic lymphoid leukemia.

Panniculitis has been documented as a paraneoplastic occurrence, appearing in GI malignancies. There are cases reporting panniculitis as a result of pancreatic

carcinoma [8]. A retrospective review found that in 11 patients with panniculitis, five had pancreatitis and six had pancreatic carcinoma [9]. Though it is not uncommon that panniculitis can be due to GI malignancy, it is unique that it is due to a hematological one.

Documented cases of CLL patients with panniculitis have been due to the adverse events related to the treatment ibrutinib[10]. In this case, the patient is on duvelisib for treatment of CLL and panniculitis has not been linked to duvelisib usage. The most common adverse events of duvelisib usage are neutropenia, diarrhea/colitis, and infection[11]. The patient has not been on ibrutinib treatment, so it is unlikely the lesions are caused by a known drug induced adverse event.

The outcome of panniculitis is a result of the underlying cause of inflammation. In addition to treating the underlying cause, treatment can involve use of nonsteroidal anti-inflammatory drugs (NSAIDs) or systemic steroids to settle inflammation. In this case, NSAIDs were not given due to interference with the patient's current CLL treatment. Thus, lesions were treated topically via 0.05% clobetasol cream and via 20 mg/mL Kenalog intralesional injection with improvement during the follow up visit. However, reoccurrence is possible because the underlying cause is associated with CLL and there have already been previous occurrences of panniculitis.

## CONCLUSION

While cutaneous manifestations of chronic lymphoid leukemia are not uncommon, panniculitis is not a common presentation. This case documents a patient with lobular panniculitis without vasculitis as a symptom

of her CLL with other common etiologies ruled out. Though reoccurrence is likely because of the association with CLL, upon local treatment, lesions improved which increased the patient's quality of life by decreasing pain and discomfort.

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