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CASE REPORT

Primary cutaneous anaplastic large-cell lymphoma: case report

Linfoma anaplásico de grandes células cutâneo primário: relato de caso

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Abstract

Primary cutaneous anaplastic large-cell lymphoma (C-ALCL) is a rare subtype of non-Hodgkin lymphoma, CD30 positive that does not exhibit extracutaneous manifestations at the time of diagnosis. The emergence of solitary papules or nodules, on the trunk and extremities, characterizes the disease. This case reports a 58-year-old female who presented with a rapidly enlarging nodule on her right calf. The biopsy revealed a malignant neoplasm of large cells. The morphological features, combined with the immunohistochemical profile, revealed a CD30-positive and anaplastic lymphoma kinase-negative lymphoproliferative disorder, consistent with C-ALCL. Shortly after the first excision, new lesions manifested in violaceous papules and nodules, and a new biopsy was performed, confirming the initial diagnosis. The patient underwent radiotherapy for 4 weeks and the lesions regressed but recurred about a year after. The patient is currently under treatment. The main goal is to emphasize the importance of considering this diagnosis as a possibility in large-cell cutaneous lymphomas.

Keywords: Case report. Anaplastic large-cell lymphoma. Cutaneous lymphoma. Dermatology. Hematology.

Resumo

O linfoma anaplásico de grandes células cutâneo primário (C-ALCL) é um linfoma não-Hodgkin raro com expressão do antígeno CD30 e que não possui manifestações extracutâneas no momento do diagnóstico. O surgimento de pápulas ou nódulos solitários, localizados principalmente no tronco e nas extremidades, são característicos da doença. Neste relato de caso, discorre-se sobre paciente do sexo feminino, 58 anos, com lesão em panturrilha direita de aspecto nodular com crescimento acelerado. Na biópsia, anatomopatológico evidenciou neoplasia maligna de células linfoides/epitelioides. Os aspectos morfológicos, associados ao perfil imunoistoquímico, revelaram desordem linfoproliferativa CD30 positiva em pele, compatível com C-ALCL. Após primeira exérese, surgimento de novas lesões dolorosas em placa de coloração violácea, com realização de nova biópsia. Foi realizada radioterapia durante quatro semanas e as lesões regrediram, porém, recidivaram cerca de um ano após o tratamento. Houve indicação de um novo ciclo de radioterapia para a paciente. A excepcionalidade do C-ALCL justifica o desenvolvimento desse relato de caso, a fim de salientar a importância de se considerar este diagnóstico como uma possibilidade nos linfomas cutâneos de grandes células.

Palavras chave: Relato de caso. Linfoma anaplásico de células grandes. Linfoma cutâneo. Dermatopatologia. Hematopatologia.

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Introduction

Primary cutaneous anaplastic large-cell lymphoma (C-ALCL) is a rare subtype of non-Hodgkin T-cell lymphoma with exclusively cutaneous onset and location[1], composed of large, atypical lymphocytes of either pleomorphic, anaplastic or immunoblastic cytomorphology, and expression of the CD30 antigen by more than 75% of tumor cells[2]. It often occurs at a median age of 60, although it may occur at any age[3], and it is the second most common manifestation of cutaneous T-cell lymphoma[2]. The clinical course of C-ALCL is predominantly indolent, distinct from the systemic anaplastic large-cell lymphoma[3].

The rarity of primary C-ALCL justifies this case report, and the main goal is to emphasize the importance of considering this diagnosis as a possibility in large-cell cutaneous lymphomas. Therefore, the report presents the clinical identification of the lesion, anatomopathological findings, and a literature review on the theme, including pathophysiology, epidemiological aspects, clinical manifestations, and treatment.

Case report

Female, 58 years old, referred to the dermatology department after surgical resection of a nodular lesion with rapid growth on the right calf, performed 5 months earlier.

The pathology report indicated a malignant neoplasm of lymphoid/epithelioid atypical cells, ulcerated, infiltrating to the deep reticular dermis and hypodermis. Lateral and deep surgical margins were negative.

When the patient was examined, she presented new painful, violaceous papules, and nodules in the right lower limb (Fig. 1). Lymphadenopathy in the inguinal chain was absent. Thus, a biopsy of the new lesions was carried out, as well as an immunohistochemistry request for better diagnostic definition.

At a follow-up appointment 1 month later, the patient still had violaceous plaques on the right lower limb and no lymphadenopathy associated. The pathology reports were not available yet.

The patient was lost to follow-up and returned after approximately 1 year with the result of the immunohistochemical study of the first lesion resected from the right calf. The neoplasm was positive for CD45, CD30, and CD3 (Fig. 2). AE1AE3, S100, and CD20 antibodies, indicative of epithelial, melanocytic, and B-lymphoid lineage, were negative. The anaplastic lymphoma kinase (ALK) protein was also negative. The morphological features, combined with the immunohistochemical profile, revealed a CD30-positive lymphoproliferative disorder in the skin, consistent with C-ALCL.

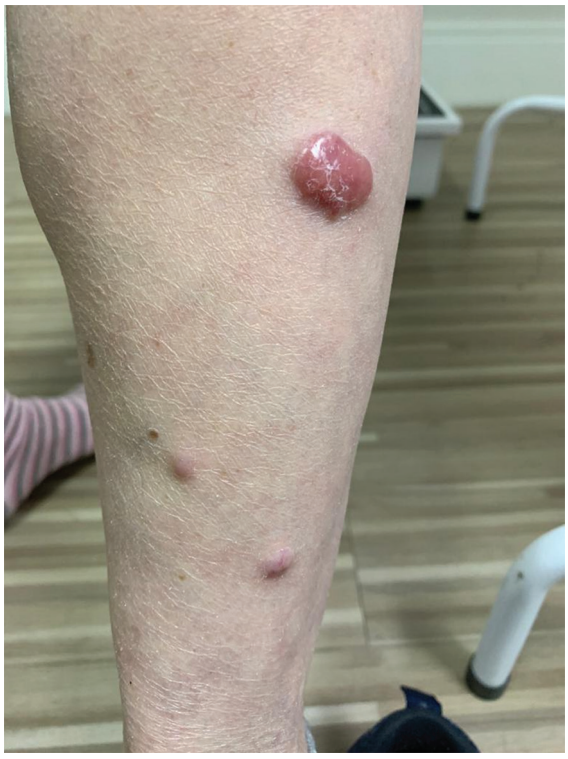

Figure 1. Large violaceous nodule in lower right limb, measuring 3.6 × 2.3 cm, accompanied by smaller papules below.

A positron emission tomography-computed tomography scan was performed, and no signs of systemic disease were found. The final diagnosis was primary C-ALCL.

Thus, the patient was referred to the hematology department. Radiotherapy was then administered for 4 weeks.

Lesions regressed but recurred about 1 year after treatment. The patient is currently undergoing a new cycle of radiotherapy.

Discussion

Primary cutaneous lymphomas are a heterogeneous group of non-Hodgkin lymphomas of the skin that does not have extracutaneous manifestations at the time of diagnosis. They mainly originate from T cells, even though they can also originate from B cells[4].

Approximately 6.4 million people worldwide are affected by primary cutaneous lymphomas[4]. The World

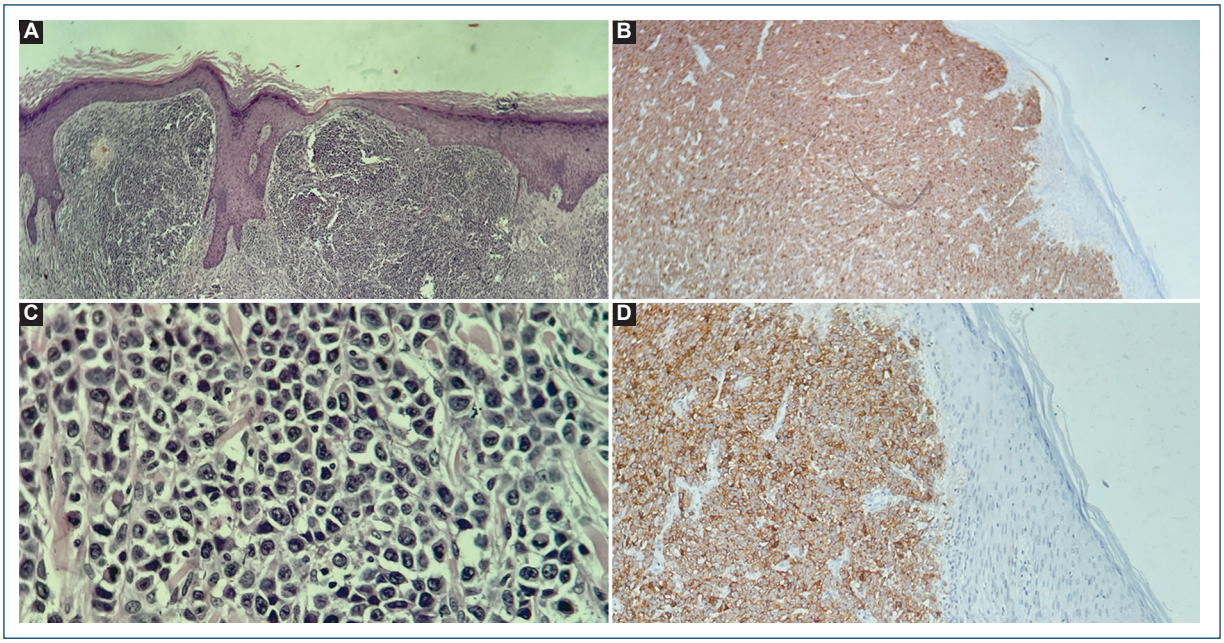

Figure 2. Histopathological and immunohistochemical (IHC) characteristics of skin neoplasm. **A:** panoramic view showing neoplasm infiltrating the dermis (×40, H&E). **B:** large cells with anaplastic features and mitosis in detail (×100, H&E). **C:** CD30 (×400, IHC). **D:** CD3 (×100, IHC).

Health Organization-European Organization for Research and Treatment of Cancer classification subdivides these types of lymphomas. According to this classification, among the subtypes of primary cutaneous lymphoma are primary cutaneous CD30+ lymphoproliferative disorders, in which CD30+ anaplastic large-cell lymphoma stands, also known as primary C-ALCL[2].

Anaplastic large-cell lymphoma is the second most common skin T-cell neoplasm after mycosis fungoides, accounting for approximately 30% of primary cutaneous lymphomas[5]. The group with the highest incidence is adults between 45 and 60 years old, with a slight predominance in males[6].

C-ALCL is mostly asymptomatic[3]. The presence of solitary papules or nodules, mainly located on the trunk or extremities, characterizes the disease[7]. These nodules persist for 3-4 weeks, tend to ulcerate over time, and show spontaneous regression (20-42% of cases) followed by relapses[5]. On average, 20% of patients present multifocal lesions, even though extracutaneous involvement rarely occurs[2].

Diagnosis occurs through clinical findings, laboratory tests, skin biopsy with anatomopathological analysis, and complementary immunohistochemical evaluation. At this stage, it is significant to ensure that in addition to positivity for CD30, negativity for ALK-1 is required to exclude the possibility of systemic ALCL with cutaneous involvement since this manifestation is more aggressive than C-ALCL[8].

Histological examination reveals a neoplastic proliferation of large lymphocytes in the dermis and subcutaneous cellular tissue. The epidermis is not usually involved, although epidermotropism is occasionally present[9]. The lymphocytes are of anaplastic appearance, with irregular and prominent nuclei, abundant cytoplasm, atypical mitoses, and some cells with plasmacytoid appearance[7].

The prognosis depends on multiple clinical and histopathological factors, with a median survival of 5 years in 97.5% of cases in the early stage[7]. Patients over 60 years old, absence of spontaneous regression, presence of extracutaneous dissemination, and extensive limb disease are related to an unfavorable prognosis[5].

As for treatment, it is mainly performed by local surgical excision. Radiotherapy is reserved for cancers with high tumor mutational burden and systemic chemotherapy is typically reserved for cases with a greater extent of disseminated disease[5].

In addition, when the lymphoma is refractory to main therapies, there is the possibility of performing autologous or allogeneic stem cell transplantation. However, due to the high morbidity and mortality associated with this therapy, it is reserved for stable patients with risk-benefit assessments[10].

Conclusion

Primary C-ALCL is an uncommon subtype of T-cell lymphoma. It is an exclusively cutaneous neoplasm and is distinguished by the presence of CD30-positive cells. Upon diagnosis of cutaneous ALCL, it is necessary to confirm the negativity for ALK-1 protein, to exclude the possibility of cutaneous manifestation of the systemic ALCL, which has worse prognosis.

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Conflicts of interest

None.

Ethical disclosures

Protection of individuals and animals. The authors state that for this investigation, no experiments were conducted on humans and/or animals.

Confidentiality of data. The authors declare to have followed their institution's protocols regarding the publication of patient data.

Right to privacy and written consent. The authors declare to have obtained written consent from patients and/or subjects mentioned in the article. The corresponding author must possess this document.

Use of artificial intelligence for generating texts. The authors declare that they did not use any type of generative artificial intelligence in drafting this manuscript, neither for the creation of figures, graphs, tables, and/or their respective captions.

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