Dermatology Practical & Conceptual

Adenoid Basal Cell Carcinoma as a Late Complication of Acute Lymphoblastic Leukemia: A Case Study in Adult Survivors

Luísa Homem de Mello Maciel Campilongo[1], Lívia Ugikawa Fujiwara[1], Júlia Berenguer Farias[1], Francisco Macedo Paschoal[1]

1 Department of Dermatology, Centro Universitário FMABC, Santo André, São Paulo, Brazil

Key words: Basal cell carcinoma, Acute lymphoblastic leukemia, Second neoplasms, Late complications, Adult survivors.

Citation: Campilongo LHM, Fujiwara LU, Farias JB, et al. Adenoid Basal Cell Carcinoma as a Late Complication of Acute Lymphoblastic Leukemia: A Case Study in Adult Survivors. *Dermatol Pract Concept*. 2025;15(3):5262. DOI: https://doi.org/10.5826/dpc.1503a5262

Accepted: February 13, 2025; **Published:** July 2025

Funding: None.

Competing Interests: None.

Authorship: All authors have contributed significantly to this publication.

Corresponding Author: Luísa Homem de Mello Maciel Campilongo. 1124 Adolfo Bastos Street, 132 apartment, Santo André, São Paulo, 09041-000, Brazil. E-mail: luisacampi98@gmail.com. ORCID number: 0000-0002-1555-807X.

Introduction

Adenoid basal cell carcinoma (ABCC) is a rare basal cell carcinoma (BCC) variant, accounting for 1.3% of all BCC cases [1]. UV radiation is an important risk factor for its development, inducing DNA damage and uncontrolled skin cell proliferation [2]. Patients with acute lymphoblastic leukemia (ALL) who have undergone cytotoxic therapies are at an increased risk of developing secondary neoplasms [3,4]. We report a case of ABCC in a young adult with treated infant ALL.

Case Presentation

A 33-year-old female, Fitzpatrick skin phototype V, presented an ulcerated, well-delimited, hyperpigmented, growing nodule on the left frontal region for over two years (Figure 1A). Her medical history was significant for acute lymphoblastic leukemia, diagnosed at the age of three and treated with chemotherapy and radiotherapy, achieving complete remission two years after the diagnosis.

Dermoscopy revealed a multicolored tumor with central ulceration, erythema, telangiectasias, and chrysalides (Figure 1B). The initial differential diagnosis included pigmented epithelioid melanocytoma, malignant melanoma, and nodular basal cell carcinoma. A shave biopsy demonstrated an infiltrative epithelial neoplasm composed of proliferative cells, with hyperchromatic nuclei, arranged in solid buds in a palisade pattern with mucin-filled spaces. An inflammatory lymphoplasmacytic infiltrate was observed in the dermis (Figure 2). The findings suggested solid adenoid basal cell carcinoma diagnosis with reticular dermis infiltration.

The tumor was completely excised using Mohs micrographic surgery. At the six-month follow-up, no recurrence was observed. The patient was satisfied with the cosmetic outcome and remains under dermatologic surveillance in our service.

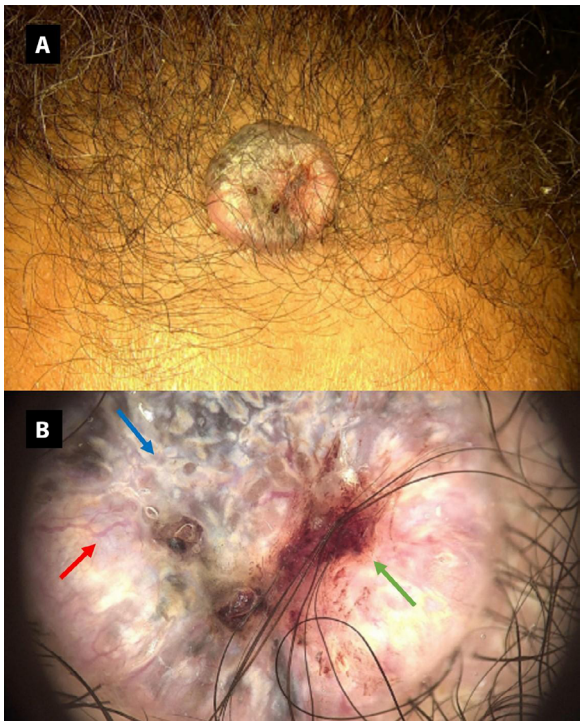

Figure 1. (A) Well-delimited, ulcerated, hyperpigmented nodule on the left frontal region; (B) Dermoscopy of the tumor showing central ulceration (green arrow), erythema, telangiectasias (red arrow), and chrysalides (blue arrow) (20x magnification).

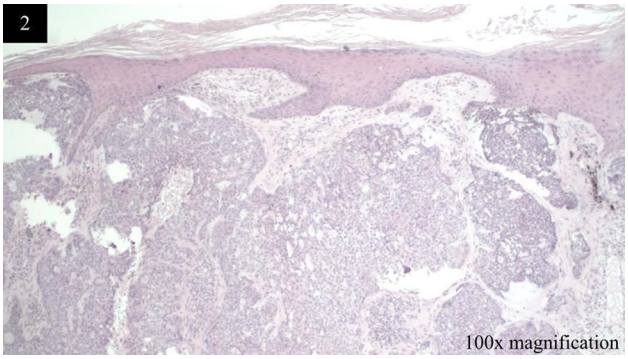

Figure 2. Histopathological analysis revealing cells with hyperchromatic nuclei arranged in a palisade pattern (H&E, 100x magnification).

Conclusion

ALL is the most common childhood malignancy, with peak incidence in children aged 1 to 4 years [5]. Advances in antileukemic treatment [3] have improved survival rates, prompting research into long-term outcomes. A retrospective study [4] reported a gradual increase in the incidence of secondary malignant neoplasms (SMN) among ALL survivors, reaching 10.85% after 30 years of remission. Most cases involved low-grade tumors such as meningiomas and BCCs.

BCC accounts for over 70% of skin cancers worldwide. In darker phototypes, it is less common and usually presents subtle clinical features. Its early onset is often correlated with rare hereditary disorders [2].

BCC pathogenesis is multifactorial, involving genetic mutations, phenotypic predispositions, immune deficiencies, and ionizing radiation exposure [2]. However, its direct association with ALL treatments remains poorly documented. Few case reports have described BCC arising in previously irradiated areas, with varying latency periods [5]; Hijiya et al. [4] mentioned a median of 26.5 years.

A comprehensive diagnostic approach, including dermoscopy, histopathology and Mohs micrographic surgery, was crucial in this report, ensuring an accurate diagnosis and effective treatment.

Study limitations include a short follow-up period, the absence of genotypic mutation analysis, and a lack of detailed radiotherapy records.

Long-term surveillance for secondary malignancies should be considered in cancer survivors. Regular dermatologic examinations, particularly in previously irradiated areas, are essential for early diagnosis.

Ethics Statement

Written informed consent was obtained from the patient for the publication of this report.

References

1. Saxena K, Manohar V, Bhakhar V, Bahl S. Adenoid basal cell carcinoma: a rare facet of basal cell carcinoma. *BMJ Case Rep*. 2016;2016:10.1136/bcr-214166. Published 2016 Apr 19. DOI:10.1136/bcr-2015-214166.
2. Dika E, Scarfì F, Ferracin M, et al. Basal Cell Carcinoma: A Comprehensive Review. *Int J Mol Sci*. 2020;21(15):5572. Published 2020 Aug 4. DOI:10.3390/ijms21155572.
3. Borgmann A, Zinn C, Hartmann R, et al. Secondary malignant neoplasms after intensive treatment of relapsed acute lymphoblastic leukaemia in childhood. *Eur J Cancer*. 2008;44(2): 257-268. DOI:10.1016/j.ejca.2007.09.019.
4. Hijiya N, Hudson MM, Lensing S, et al. Cumulative incidence of secondary neoplasms as a first event after childhood acute lymphoblastic leukemia. *JAMA*. 2007;297(11):1207-1215. DOI:10.1001/jama.297.11.1207.
5. Unal S, Cetin M, Gumruk F. Basal cell carcinoma after treatment of childhood acute lymphoblastic leukemia and concise review of the literature. *Pediatr Dermatol*. 2015;32(3):e82-e85. DOI:10.1111/pde.12559.