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CASE STUDY

Psoriasis vulgaris and B-cell non-Hodgkin lymphoma: a complex case with rare cephalic localization

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ABSTRACT

Introduction. Psoriasis is a chronic immune-mediated inflammatory condition and is considered a potential risk factor for the development of hematologic malignancies, particularly in the context of immunosuppressive therapy and T-cell dysfunction. B-cell non-Hodgkin lymphomas are neoplasms of the lymphatic system with variable clinical manifestations, most commonly presenting with peripheral lymphadenopathy. Primary localization in the soft tissues of the head, with bone invasion, is rare.

Case presentation. We report a rare case of cephalic aggressive NHL Not Otherwise Specified (NOS) in a 63-year-old patient with a history of psoriasis vulgaris and Clear cell carcinoma (T1N0M0, treated in 2021 at the Oncology Institute in Chişinău), who presented with a painless right temporo-parietal mass. MRI revealed a 48×19×50 mm lesion in the temporal soft tissues with extension into the frontal bone. Surgical biopsy and immunohistochemistry (CD20+, CD79a+, CD45+, BCL6-) confirmed the diagnosis of B-cell NHL NOS. In 2022, the patient received 8 induction cycles of immunochemotherapy followed by maintenance therapy with Rituximab. PET/CT evaluation showed a Deauville score of 3, indicating a partial favorable response. Associated comorbidities (psoriasis, type 2 diabetes mellitus, hypertension) required multidisciplinary monitoring.

Conclusions. This case illustrates an unusual cranial localization of aggressive B-cell lymphoma NOS and highlights the potential link between psoriasis and lymphoproliferative risk, as previously suggested in the medical literature.

Keywords: non-Hodgkin lymphoma, psoriasis vulgaris, cranial localization, bone invasion, rituximab.

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Key messages

What is not yet known on the issue addressed in the submitted manuscript

The association between psoriasis vulgaris and the development of B-cell non-Hodgkin lymphoma (NHL) is rarely documented, especially in cases with cranial localization and bone invasion. Current literature provides limited data on atypical clinical presentations of NHL in patients with chronic inflammatory diseases.

The research hypothesis

Chronic inflammation in psoriasis, combined with potential immunosuppression induced by systemic therapy, may contribute to the development of lymphoproliferative malignancies with unusual clinical manifestations.

The novelty added by the manuscript to the already published scientific literature

This manuscript documents a rare case of B-cell non-Hodgkin lymphoma with temporoparietal localization and frontal bone invasion in a patient with psoriasis vulgaris and an oncologic history. It emphasizes the importance of differential diagnosis and multidisciplinary collaboration in evaluating subcutaneous cranial masses in patients with chronic inflammatory conditions.

Introduction

Psoriasis is a chronic inflammatory disease with a global prevalence ranging between 0.5% and 11.4% [1], characterized by T-cell dysfunction and persistent release of proinflammatory cytokines [2]. Beyond cutaneous and joint manifestations, the disease is associated with systemic comorbidities such as metabolic and cardiovascular disorders, and a moderately increased risk of lymphoproliferative malignancies, particularly lymphomas [3].

The etiology of non-Hodgkin lymphomas (NHL) remains incompletely understood. However, both severe immunosuppression and chronic immune stimulation are recognized as key risk factors. Immune homeostasis imbalance and chronic inflammation, together with immunosuppressive treatments (methotrexate, cyclosporine, anti-TNF agents), appear to contribute to lymphoma development in patients with psoriasis, especially in moderate-to-severe forms [3, 4].

A comprehensive 2020 meta-analysis including over 2 million patients reported a relative risk of 1.56 for lymphomas in general [5], while a 2024 North American study demonstrated a 1.5–1.8-fold increase in NHL risk in patients with mild to severe psoriasis [6].

Recent clinical case reports have also shown potential associations: Alali et al. (2021) described a case of Hodgkin's lymphoma in a patient with psoriasis vulgaris under immunosuppressive therapy [7], and Scott et al. (2023) reported psoriasis–CTCL coexistence in 5.2% of analyzed cases [8]. Nevertheless, B-cell NHLs with cranial soft tissue localization and bone invasion remain exceptional.

In this context, we present a rare case of B-cell NHL with cranial involvement and bone extension in a patient with psoriasis vulgaris and an oncologic history. Its documentation offers valuable insights into the role of chronic inflammation in lymphoproliferative disorders and underlines the importance of an interdisciplinary clinical approach.

Case presentation

A 63-year-old male patient with a history of plaque-type psoriasis vulgaris and previous oncologic pathology (Clear cell renal carcinoma, T1N0M0, treated in 2021) presented for evaluation of a progressively enlarging, painless right temporo-parietal swelling, which had evolved over several months.

His psoriasis began in adulthood, around the age of 40, and followed a chronic, therapy-refractory course, with no complete remissions reported. Initial management included topical corticosteroids, but persistent lesions led to the initiation of systemic therapy with methotrexate. On dermatologic examination, the patient displayed extensive erythematous plaques with adherent white scaling and well-defined borders, located predominantly on the trunk, flanks, and lower limbs. Some lesions were confluent and lichenified, reflecting long-standing inflammation and insufficient treatment response (Figure 1a–d). Although the patient reported intermittent joint pain, standard radiographs revealed no significant articular changes suggestive of psoriatic arthritis.

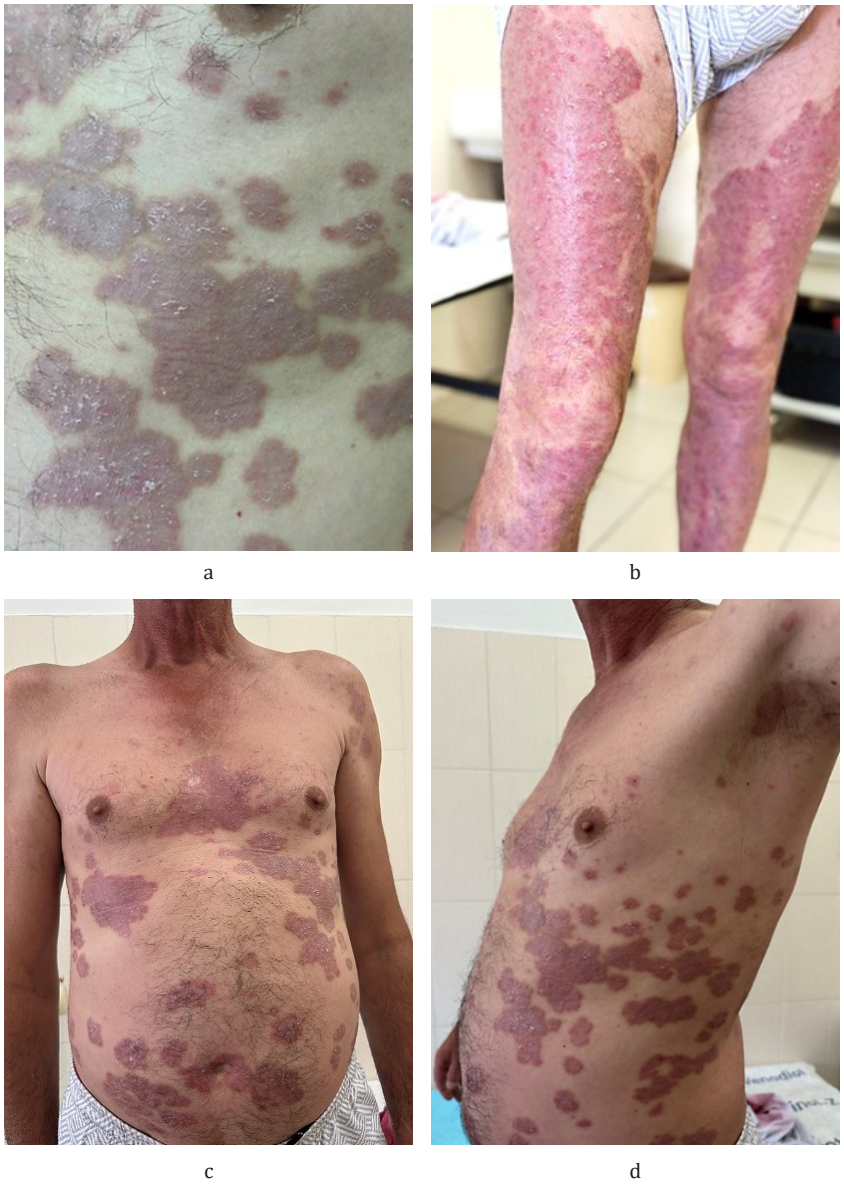
In February 2021, a left renal tumor was surgically treated and histologically confirmed as clear cell carcinoma. In March 2021, the patient noted a painless subcutaneous nodular lesion in the right temporo-parietal area, initially interpreted as inflammatory or rheumatologic in origin, and received symptomatic treatment. Associated general symptoms included asthenia and xerostomia. In March 2022, cerebral MRI revealed a tumor in the right temporal soft tissues (48×19×50 mm), anterosuperior to the parotid gland, showing a gadolinium-enhancing lesion (~37 mm) in the parasagittal frontal bone on the right – suspicious for secondary bone invasion.

In April 2022, a biopsy of the tumor fragment was performed. Hematoxylin–eosin staining revealed a diffuse malignant lymphoid proliferation with areas of crush artifact. Immunohistochemical (IHC) analysis demonstrated diffuse positivity for CD20 and CD79a, consistent with mature B-cell phenotype, while CD45 confirmed lymphoid origin. CD3 expression was restricted to scattered reactive T-cells. The neoplastic cells were negative for BCL6, pancytokeratin (pCK), CD15, CD30, and CD68, findings that excluded a germinal-center phenotype, epithelial origin, classical Hodgkin lymphoma, or a histiocytic process. The overall immunophenotype supported the diagnosis of B-cell NHL NOS (WHO/ICD-O code 9590/3) .The disease was staged as IVA, with bone involvement and enlarged parotid lymph nodes on the right side.

Induction immunochemotherapy was initiated with 8 cycles of R-CHOP, consisting of rituximab, cyclophosphamide, doxorubicin hydrochloride, vincristine sulfate, and prednisone. PET/CT evaluation in June 2023 revealed a Deauville score of 3, indicating a partial favorable response. The patient was transitioned to maintenance biological therapy with rituximab monotherapy every 2 months, which was well tolerated and led to overall clinical improvement.

Discussion

B-cell NHL is a heterogeneous lymphoproliferative neoplasm with variable clinical presentations, ranging from indolent forms to aggressive variants with rapid systemic



a b c d

Figure 1a–d. Clinical appearance of chronic plaque-type psoriasis in a 63-year-old male patient.

Multiple erythematous plaques with well-demarcated borders and thick, adherent silvery-white scales are observed on the anterior trunk (a, c), extensively on the lower limb (b), and left flank (d). Some lesions are confluent and show signs of chronicity, including lichenification and post-inflammatory hyperpigmentation. The patient reported persistent lesions despite topical corticosteroids and systemic methotrexate therapy.

progression. It most commonly presents with peripheral lymphadenopathy and constitutional symptoms, while primary involvement of the soft tissues of the head with bone invasion is rarely documented in the literature [9]. In our case, the initial presentation was a subcutaneous, painless, slowly progressive right temporo-parietal mass, later confirmed by imaging and histology as aggressive B-cell lymphoma NOS with frontal bone invasion.

In the present case, the diagnostic process was particularly challenging due to the patient's complex clinical background. The history of clear cell renal carcinoma raised an initial concern for metastatic disease, especially given the osteotropic behavior of renal cell carcinoma. However, the immunophenotype and the absence of epithelial or histiocytic markers effectively excluded this possibility. Cutaneous T-cell lymphoma was also considered, particularly in the context of psoriasis vulgaris, which can mask or mimic early CTCL. CD3 positivity restricted to reactive T-cells and the absence of T-cell lineage markers ruled out CTCL. The lack of BCL6 expression further argued against a germinal-center B-cell phenotype and supported the NOS classification.

The differential diagnosis included: bone metastasis from clear cell renal carcinoma (diagnosed in 2021), which was not supported by the immunophenotype; cutaneous T-cell lymphoma (CTCL), particularly in the context of underlying psoriasis vulgaris, as early CTCL can be clinically and histologically misdiagnosed as psoriasis [8]; and chronic inflammatory or granulomatous pseudotumoral lesions, which were excluded morphologically and immunohistochemically.

Psoriasis vulgaris represents an additional layer of complexity. Chronic immune activation, persistent systemic inflammation, and long-standing T-cell dysregulation have been associated with a moderately increased risk of lymphoproliferative disorders. Recent meta-analyses and cohort studies report a relative risk of 1.5–1.8 for lymphoma in patients with mild to severe psoriasis [4–6]. Although most associations involve Hodgkin lymphoma or CTCL, B-cell lymphomas have also been documented, suggesting a broader impact of chronic immune stimulation on lymphomagenesis. This case underscores the need for diagnostic vigilance when evaluating new or atypical masses in patients with chronic inflammatory dermatoses. Early biopsy and multidisciplinary evaluation—including dermatology, oncology, hematology, and radiology—are essential to avoid diagnostic delay in complex cases such as this.

Conclusions

This case highlights a rare presentation of aggressive B-cell NHL NOS with cranial soft-tissue involvement and bone erosion, posing significant diagnostic challenges given the patient's long-standing psoriasis and prior oncologic history. Histopathology and immunohistochemistry were essential in distinguishing lymphoma from potential mimickers, including renal cell carcinoma metastasis and cutaneous T-cell lymphoma. The association with chronic psoriasis underscores the importance of considering lymphoproliferative disease in patients with persistent inflammatory dermatoses or atypical cutaneous lesions. This

report reinforces the need for multidisciplinary evaluation and timely biopsy in order to avoid diagnostic delay in similar complex clinical settings.

Competing interests

None declared.

Authors' contributions

MR conceived the study, participated in the clinical assessment and drafted the manuscript. MB contributed to dermatological evaluation and clinical monitoring of the patient. SB and PV were responsible for oncologic and hematologic management, including therapeutic decision-making and follow-up. DV performed the immunohistochemical analysis and interpretation. LS contributed to histopathological examination and diagnostic validation. All authors critically reviewed and approved the final version of the manuscript.

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Informed consent for publication

Obtained.

Ethics approval

Not needed for this article.

Provenance and peer review

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