Dermatology Practical & Conceptual

Non-Melanoma Skin Cancer Aggravation in Polycythemia Vera: Triggered by Ruxolitinib and Silenced With an IFN/Cemiplimab

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Case Presentation

A patient with JAK2+ polycythemia vera (PV) was started on ruxolitinib after inadequate disease control with initial therapy, which was later increased to 20 mg twice daily. Two months later, the patient developed a large ulcerative nasal lesion, diagnosed as squamous cell carcinoma (SCC) (Figure 1). This lesion was a recurrence of a nasal epithelioma that had been surgically removed 30 months prior. Ruxolitinib was discontinued, and ropeginterferon alfa-2b was introduced. The patient achieved full hematological and clinical response with 350 mg ropeginterferon alfa-2b every 15 days. Cemiplimab was then added for the recurrent SCC, resulting in satisfactory lesion regression (Figure 1) without adverse effects probably due to the combined benefits of interferon and PD-1 inhibition.

Teaching Point

Ruxolitinib, a JAK-STAT pathway inhibitor, has been approved for treating PV in patients who are intolerant or resistant to hydroxyurea. It effectively alleviates systemic symptoms, controls hematocrit counts, and reduces spleen volume. However, reports highlight a high incidence of aggressive non-melanoma skin cancers among ruxolitinib-treated

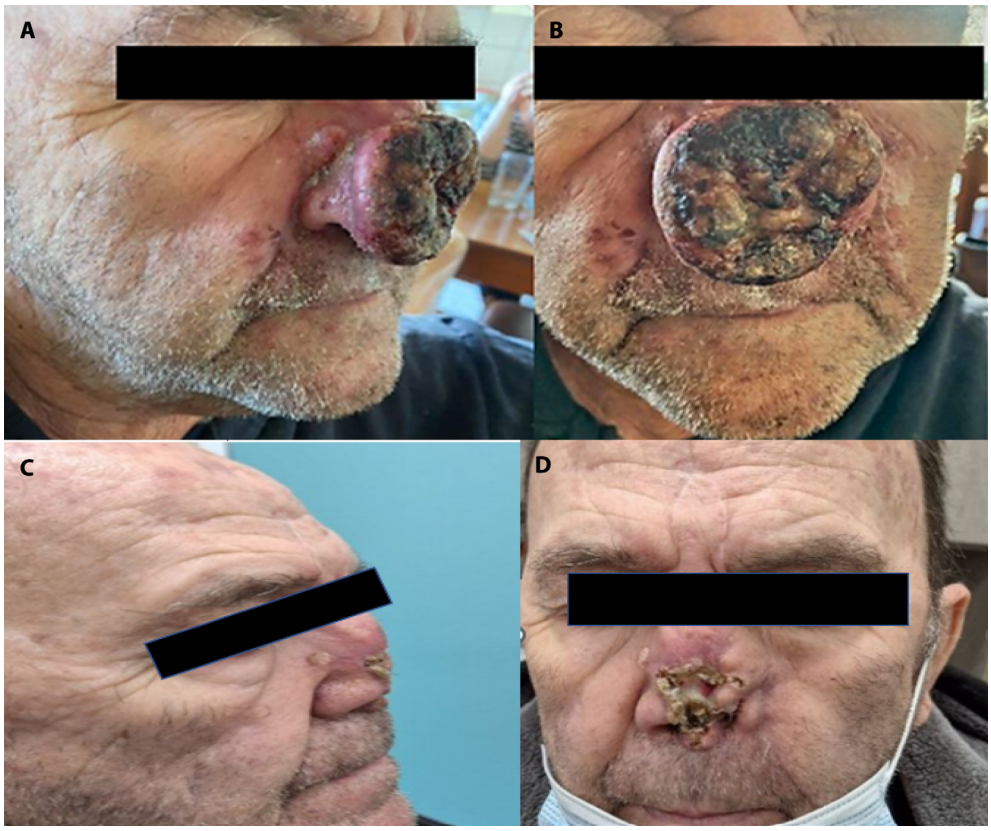

Figure 1. (A,B). Patient undergoing ruxolitinib treatment exhibited SCC progression, manifesting as a significant, ulcerated lesion on the nose tip, draining pus. (C,D). Following treatment, the lesion notably improved, with the cancerous mass diminishing and the lesion re-epithelializing. This transformation occurred after the fourth dose of cemiplimab (350 mg cemiplimab, every 3 weeks), alongside ongoing ropeginterferon α-2b therapy.

patients, with poor or moderate differentiation and elevated rates of recurrence, metastasis, and mortality [1].

Due to the additive therapeutic effectiveness of Interferon (IFN) and PD-1/PD-L1 inhibition across various cancer types and in particular in melanoma, anti-PD-1 treatment such as cemiplimab was considered as an additional treatment for this locally advanced and recurrent SCC [2]. Our case supports the co-administration of an anti-PD-1 antagonist with IFN to control both SCC and PV in a patient with SCC aggravation following ruxolitinib exposure.

References

1. Lin JQ, Li SQ, Li S, et al. A 10-year retrospective cohort study of ruxolitinib and association with nonmelanoma skin cancer in patients with polycythemia vera and myelofibrosis. *J Am Acad Dermatol.* 202;86(2):339-344. DOI: 10.1016/j.jaad.2021.10.004. PMID: 34648874.
2. Razaghi A, Durand-Dubief M, Brusselaers N, Björnstedt M. Combining PD-1/PD-L1 blockade with type I interferon in cancer therapy. *Front Immunol.* 2023;14:1249330. DOI: 10.3389/fimmu.2023.1249330. PMID: 37691915. PMCID: PMC10484344.