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Early-Onset Multiple Basal Cell Carcinomas in Xeroderma Pigmentosum Complementation Group E: A Case Report

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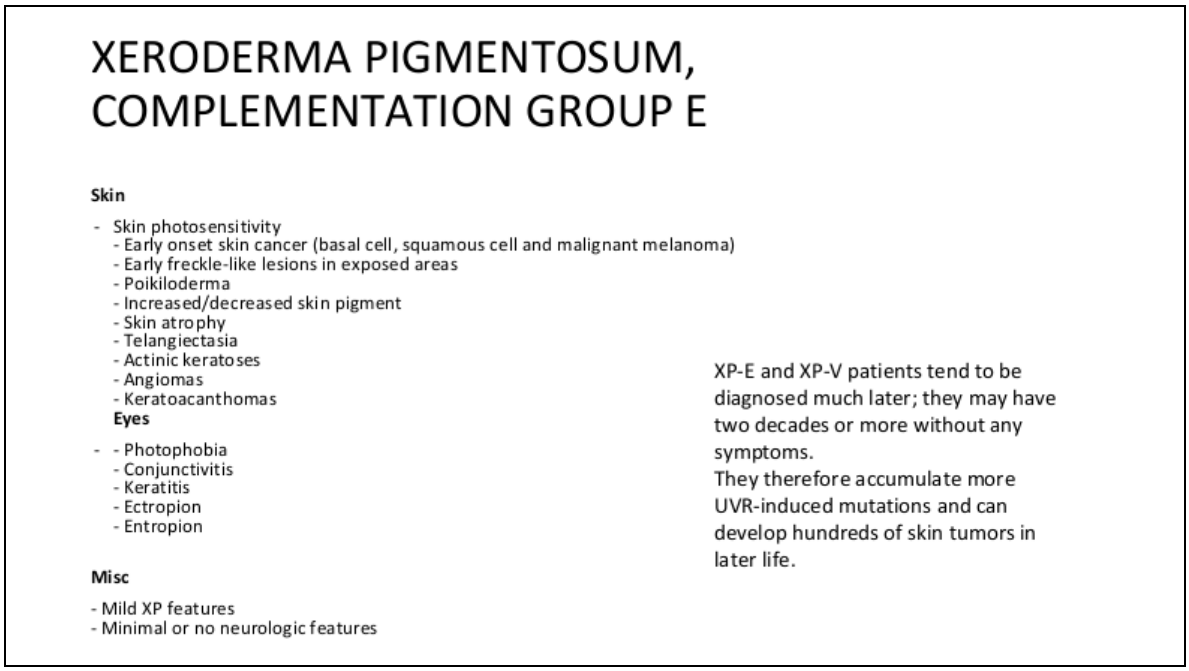
Introduction

Xeroderma pigmentosum (XP) is a rare autosomal recessive disorder caused by defects in nucleotide excision repair, leading to extreme ultraviolet (UV) sensitivity and a markedly increased risk of cutaneous malignancies at a young age. XP is genetically heterogeneous and classified into several complementation groups (XP-A to XP-G and XP-V). Xeroderma pigmentosum complementation group E (XP-E), associated with pathogenic variants or deletions in the *DDB2* gene, is considered a relatively mild subtype, often lacking neurologic involvement and therefore frequently diagnosed later in life. Despite this, cumulative UV exposure may result in multiple skin cancers. We report a young patient with early-onset multiple basal cell carcinomas (BCCs) associated with XP-E



Materials and Methods

An 18-year-old male patient was referred due to recurrent ulcerated facial lesions histopathologically diagnosed as basal cell carcinoma. Comprehensive dermatologic examination, histopathological evaluation, and molecular genetic testing were performed. Two incisional biopsies were obtained from suspicious facial lesions. Next-generation sequencing (NGS) was used to analyze XP-associated genes (*DDB2, ERCC2, ERCC3, ERCC4, ERCC5, POLH, XPA, XPC*). Copy number variation (CNV) analysis was additionally conducted to detect large genomic deletions. Clinical findings were correlated with histopathological and molecular results.

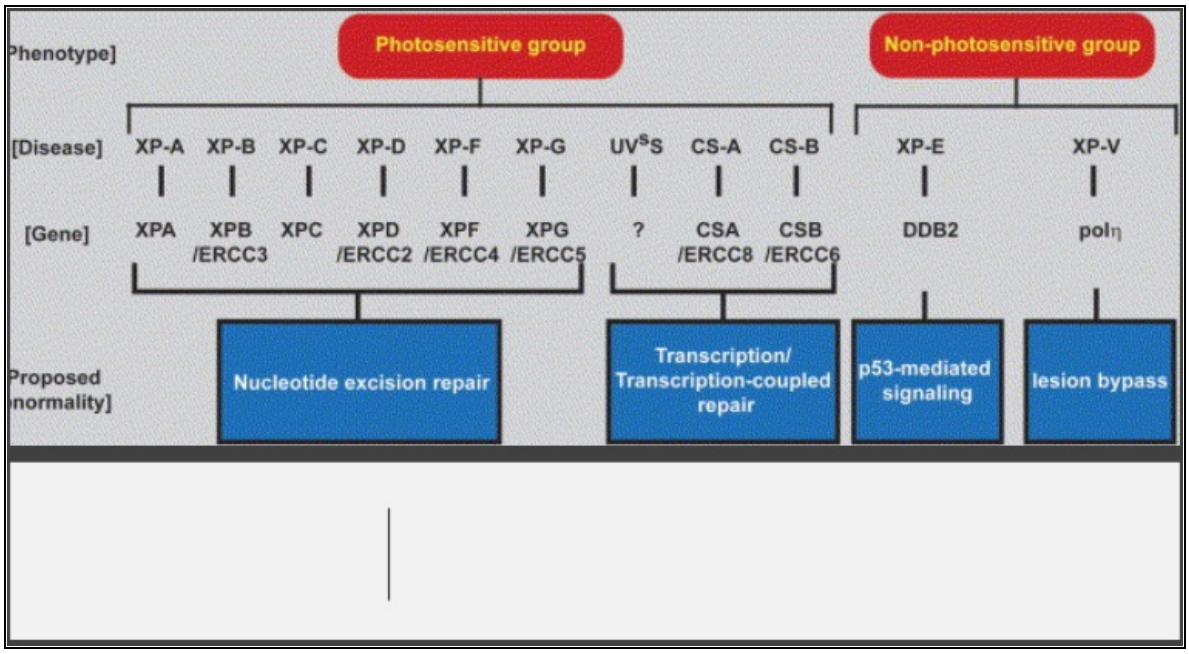
Results

The patient had Fitzpatrick skin type IV and was born to consanguineous parents, with no systemic comorbidities. He presented with bilateral infraorbital and lateral nasal ulcerated, crusted, and intermittently bleeding lesions that had appeared approximately one year prior. Facial examination revealed multiple lentigines on sun-exposed areas, while truncal skin examination was unremarkable.

Histopathological examination demonstrated basal cell carcinoma in both the right cheek and left lateral nasal lesions, accompanied by dense inflammatory infiltrates. The patient underwent wide local excision of the tumors.

NGS analysis did not identify pathogenic sequence variants in the analyzed XP-related genes. However, CNV analysis revealed a homozygous deletion involving exons 1–3 of the *DDB2* gene, consistent with xeroderma pigmentosum complementation group E. The molecular diagnosis correlated with the patient's relatively mild phenotype and absence of neurologic involvement.

A multidisciplinary management strategy was initiated, including strict photoprotection, regular dermatologic surveillance, oral vitamin D supplementation, systemic acitretin (25 mg/day), and field-directed topical imiquimod therapy.



Conclusions

This case illustrates that xeroderma pigmentosum complementation group E may present with early-onset multiple basal cell carcinomas despite a relatively mild clinical phenotype. XP-E should be considered in young patients with multiple or early-onset non-melanoma skin cancers, even in individuals with darker skin phototypes. Molecular genetic testing, including CNV analysis, plays a crucial role in establishing the diagnosis. Early recognition allows timely preventive measures and long-term surveillance, which are essential to reducing cumulative skin cancer burden and improving patient outcomes.