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Increased incidence of fluoroscopy-induced radiation dermatitis: An overlooked complication after interventional cardiologic procedures

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Fluoroscopy-induced radiation dermatitis (FIRD), resulting from interventional cardiologic procedures, is an underreported entity that carries high morbidity. As the leading cause of mortality around the globe, coronary atherosclerosis is requiring more widespread diagnostic and therapeutic procedures using fluoroscopy, including angiography with percutaneous coronary interventions (PCI). Latest interventional algorithms and repeated procedures lead to higher cumulative radiation doses to the skin. The incidence of FIRD has increased in the past twenty years and the expectation is that this trend will continue. This case is intended to familiarize dermatologists with fluoroscopy-induced radiation dermatitis (FIRD) and the risk of malignant transformation at the site of radiation injury. A 73-year-old while male patient requested reevaluation of an area in his back that had developed localized bleeding. Having undergone cardiac catheterization with PCI ten years previously, the patient had been educated about his increased risk of skin cancer in the radiation port. The diagnosis of FIRD is based on the history and the clinical recognition of sharply demarcated dermatitis limited to the irradiated area on the patient's back at the site of beam entry. Diagnostic challenges include the variable onset interval from weeks to months from the time of the initial radiologic procedure to the development of FIRD and the lack of awareness among clinicians. Focal malignant transformation into squamous cell carcinoma at the site of the radiation injury is an important consideration that justifies close dermatologic surveillance of patients who have had prolonged and/or repeated interventional cardiologic procedures.

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A perfect storm: Multiple genetic mutations in a patient with type 1 neurofibromatosis leading to 14 primary malignant melanomas

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Introduction: The neurofibromin 1 gene is a tumor suppressor and its loss is frequently reported in sporadic cases of melanoma. Both melanocytes and peripheral nerves are derived from neural crest cells, thus a theoretical risk of melanoma development exists in patients with type 1 neurofibromatosis (NF1). However in reality, the incidence of malignant melanoma in NF1 patients is rare, and is only described in scattered case reports. This case describes the development of 14 primary malignant melanoma tumors in a patient with NF1. His genetic work-up elucidates combinations of genetic mutations present which may predispose to melanoma development.

Case: A 74-year-old man with a medical history for NF1 was diagnosed with 14 malignant melanomas over the course of 8 years. Family history was notable for NF1 in his twin brother and son, and melanoma in 4 of 7 siblings, with melanoma being the cause of death in 2 of the 4. Genetic testing revealed an NF1 germline mutation and next generation tumor tissue sequencing techniques further revealed mutations in the IDH1 and PTPN11 genes.

Conclusions: Loss of the NF1 and PTPN11 gene act on the mitogenic-activated protein kinase pathway to induce tumorgenesis, while the IDH1 gene mutation results in accumulation of an oncometabolite, which acts as an epigenetic marker to further propagate melanoma development. This case is the first to highlight a novel combination of multiple genetic mutations that may act synergistically on a unique molecular pathway to increase susceptibility for melanoma development in patients with type 1 neurofibromatosis.

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Eczema Area and Severity Index 90 (EASI-90) responder rates with abrocitinib and relationship with quality of life (QoL) and itch in patients with moderate to severe atopic dermatitis: Results from a randomized phase 3 clinical trial

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Introduction: Abrocitinib is an oral Janus kinase 1 inhibitor under investigation for the treatment of moderate to severe AD.

Design: Randomized, double-blind, placebo-controlled phase 3 trial (NCT03349060; JADE MONO-1).

Methods: Patients ≥12 years old with clinical diagnosis of moderate to severe AD were randomly assigned (2:2:1) to once-daily abrocitinib 200 mg, abrocitinib 100 mg, or placebo for 12 weeks. Eczema Area and Severity Index 90 (EASI-90), Dermatology Life Quality Index (DLQI), Children's DLQI (CDLQI), and peak pruritus numeric rating scale (PP NRS; 0-10) were measured at baseline and weeks 2, 4, 8, and 12.

Results: 154, 156, and 77 patients were treated with abrocitinib 200 mg, abrocitinib 100 mg, or placebo, respectively. Proportions of patients achieving ≥ 90% improvement in EASI-90 overall were 38.6% and 18.6% versus 5.3% at week 12 (difference from placebo [95% CI], 33.4% [24.3%-42.5%] and 13.3% [5.4%-21.2%]), with little difference between those with moderate baseline IGA (42.9% and 18.5% vs 6.7%; 36.2% [23.7%-48.7%] and 11.8% [1.0%-22.6%]) and severe baseline IGA (32.3% and 18.8% vs 3.2%; 29.0% [15.8%-42.2%] and 15.5% [4.1%-26.9%]). Greater proportions of week-12 EASI-90 responders versus nonresponders achieved no/mild alteration in QoL (89.0% vs 46.6%; per published [C]DLQI severity bands), ≥4-point improvement in PP-NRS (88.4% vs 25.1%; among those with baseline PP-NRS ≥4), and PP-NRS <2 (70.0% vs 10.2%; among those with baseline PP-NRS ≥2).

Conclusions: Abrocitinib therapy was associated with significantly greater EASI-90 responder rates versus placebo, regardless of baseline AD severity. EASI-90 response at week 12 corresponded with patients experiencing low impairment in QoL, clinically meaningful improvement in itch, and/or little-to-no itch.

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Ten of TEN and counting: The story of Toxic Epidermal Necrolysis (TEN) at the University of New Mexico from 2017 to 2018

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Stevens-Johnson syndrome (SJS) and TEN are rare, acute, life-threatening mucocutaneous diseases often due to drug-induced immune-mediated epidermal necrosis. Associated symptoms include skin pain, fever, anxiety, and asthenia. Rashes initially appear benign but progress rapidly and unpredictably. Commonly affected populations include women, slow-acetylator genotypes, immunocompromised, and those treated with concurrent anticonvulsant and radiotherapy. High risk HLA types include B1502 in Asian/East Indians (carbamazepine) and B5801 in Han Chinese (allopurinol). At the University of New Mexico (NM), we consulted on 11 cases last year alone. Although our SJS rates fall within range, our TEN rates are nearly 3× higher than the reported incidence. Our mortality rates have remained consistent with the literature. We observed a 1.75:1 female-to-male ratio. Ethnicities included American Indian, non-Hispanic white, white, and Asian. Seven patients had liver failure due to alcohol abuse, stage IIIB unresectable intrahepatic cholangiocarcinoma, or shock liver. Other comorbidities included epilepsy and rheumatoid arthritis. The most commonly offending drugs were sulfamethoxazole-trimethoprim, lamotrigine, and cefepime. Two patients previously tolerated lamotrigine and developed TEN following uptitration. Cirrhosis has been identified in the literature to be a statistically significant risk factor for SJS/TEN. NM has the highest incidence of chronic liver disease and cirrhosis mortality in the country. Per Bolognia, there is "compelling evidence to suggest that SJS/TEN is associated with an impaired capacity to detoxify reactive intermediate drug metabolites." We suspect that the increased incidence of TEN in NM may be associated with the increased incidence of liver disease/failure in NM. Another consideration is an unknown HLA type within our unique population.

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