Abstract N°: ID-335

Topic: Contact and occupational dermatitis

Demographic and Clinical Profile of Allergic Contact Dermatitis Patients Who Tested Positive with Metal Allergy from a Tertiary Hospital: A 12 Year Retrospective Study

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Introduction

Contact dermatitis is a common inflammatory skin condition classified into irritant contact dermatitis (ICD) and allergic contact dermatitis (ACD), with ICD accounting for about 80% of cases. ACD is a delayed hypersensitivity reaction in previously sensitized individuals, commonly presenting with pruritus, erythema, and edema, and is frequently associated with occupational exposure, particularly affecting the hands. Metal allergy is a major cause of ACD, affecting 15–20% of the population, with nickel, chromium, and cobalt being the most common allergens, though other metals are increasingly recognized. Patch testing is the diagnostic gold standard, but clinical relevance and exposure correlation are essential for confirming ACD.

Limited local data exist on the demographic profile of metal-allergic ACD patients. This study aims to describe these characteristics in a tertiary hospital to aid early identification of causative allergens.

Materials and Methods

This research is a descriptive cross-sectional study, specifically a retrospective chart review, on all allergic contact dermatitis patients who tested positive with metal allergy in a 12-year study period. Data was collected through manual chart review of patients with allergic contact dermatitis who tested positive with metal allergen using the 30 allergen European Baseline Series and 80 allergen International Comprehensive Baseline Series that were seen at the Dermatology Outpatient Department (OPD) of Jose R. Reyes Memorial Medical Center from January 02, 2012 to January 02, 2025. Based on an estimated population of 479 patient records from 2012 to 2015 with confirmed metal sensitization, the required sample size was calculated using a 95% confidence level, a 5% margin of error, and an assumed proportion of 0.5 (to reflect maximum variability). The following data was collected and analyzed: patient's age, gender, occupation, potential allergen exposure, history and family history of atopy, primary site of lesion and exposure, and positive metal allergens after performing patch testing.

Results

Nickel was the most prevalent allergen identified, followed by cobalt, chromium, and gold. Female patients and younger individuals were more frequently sensitized to nickel, often associated with non-occupational exposures such as jewelry. In contrast, cobalt and chromium allergies were more common among males, aligning with occupational exposures like cement and industrial materials. Lesions predominantly affected the hands, feet, and arms. More than half of the participants reported relevant exposure in relation to their positive metal allergen.

Conclusions

Nickel, cobalt, chromium, and gold remain to be the most prevalent metal allergens identified through patch testing, with nickel remaining the top sensitizer, especially among females. Although the correlation between the occupation and the specific allergen was not done, no significant occupation-allergen association was found, cobalt and chromium remains to be a known occupational exposure risk especially with men. The most common lesion sites were the hands and feet, with chronicity frequently noted, as these areas are commonly exposed to irritants or metal-containing objects. A history of atopy was noted in several patients, with more intense patch test reactivity seen in younger individuals, particularly for nickel. Despite some limitations, this study highlights the clinical relevance of patch testing in diagnosing contact allergies to metals and tailoring management through targeted exposure avoidance.

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Topic: Contact and occupational dermatitis

The cutaneous barrier in the context of lunar regolith: dermatological challenges for manned missions to the moon.

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Introduction
In preparation for the Artemis III missions and China's Chang'e programme, one of the key challenges to ensuring the health of astronauts is exposure to lunar regolith, which adheres to spacesuits through electrostatic interaction and enters spacecraft interiors. Under microgravity conditions, the skin undergoes adverse changes such as thinning of the epidermis, loss of elasticity and impaired healing processes, making it extremely vulnerable to injury. Lunar dust, the product of billions of years of micrometeorite bombardment, has unique and adverse physicochemical properties. The aim of this study is to analyse the effect of regolith on the skin based on data from the Apollo missions and contemporary toxicological studies.

Materials and Methods
Medical reports from the Apollo missions were reviewed and the results of contemporary in vitro and in vivo studies using regolith simulants (CLDS-1, SMA, JSC-1A) and authentic samples from the Apollo 14 and 16 missions. The reactions of human epithelial cells and fibroblasts to contact with dust with a high content of silica and nanophase iron were analysed.

Results
Lunar regolith consists mainly of silicon oxides (~50% SiO_2), aluminium, calcium and titanium (TiO_2), but its most toxic feature is the presence of nanophase iron (e.g. Fe^0) embedded in a glassy matrix. These particles have sharp, irregular edges, which cause mechanical microtrauma. The mechanism of toxicity is based on the induction of severe oxidative stress and the generation of free radicals (Fenton reaction), leading to damage to the barrier lipids of the epidermis and cellular proteins. Apollo mission astronauts reported dermatological symptoms such as skin irritation, erythema and intense itching, known as ‘Space Rash’. Studies have also shown that contact with dust exacerbates wound inflammation and may promote bacterial infections, especially when the skin's pH shifts towards alkaline in microgravity conditions.

Conclusions
Ensuring the integrity of the skin barrier is critical to the success of long-term presence on the Moon. Proposed preventive strategies include: 1. Use of sealed, multi-layered spacesuits (e.g., AxEMU) and engineered dust removal systems (e.g. electrostatic brushes). 2. Use of barrier creams to minimise dust penetration and regular use of agents to maintain the physiological pH of the skin. 3. Continuous monitoring of the skin microbiome and use of telemedicine for early diagnosis and treatment of dust-induced dermatoses. Understanding the interaction between regolith and the epidermal barrier is crucial to avoiding dermatoses that limit the operational capability of crews during long-term missions on the lunar surface.

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Topic: Contact and occupational dermatitis

Rosacea-like systemic contact dermatitis induced by ingestion of Peruvian balsam-containing foods

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Introduction

Rosacea-like dermatitis is mainly drug-induced and represents a separate entity from rosacea. We present a case of rosacea-like systemic contact dermatitis induced by Peruvian balsam-containing foods.

Materials and Methods

A 28-year-old woman presented to our clinic with a one-month history of redness over her cheekbones anda burning sensation. The patient had been treated with topical steroids without improvement. She denied any history of allergies, skin disorders, or use of medications. One month prior to the onset of the rash, the patient visited a gastroenterologist who advised her to include cinnamon and ginger in her daily diet.
On physical examination, there was a diffuse erythema, symmetrically distributed over the zygomatic areas and the mentum. A papular rash was observed on the forehead. A patch test was performed and positive results for Peruvian balsam (++) and Fragrance mix 1 (+) were observed at 48 and 72 hours. Therapy with topical pimecrolimus, twice per day, was prescribed. The patient was advised to discontinue the use of cinnamon and ginger and to avoid products containing Balsam of Peru.

Results

Balsam of Peru (BP) is a natural product with antiseptic properties and is found in various drugs, remedies, and healthcare products. Most commonly, allergic contact reactions are observed after its external use, however, systemic contact dermatitis can be seen after oral uptake of BP-containing foods and drugs. The most commonly implicated foods include tomatoes, flavoring agents, citrus, and spices, such as cinnamon and ginger. The clinical manifestations are highly variable, ranging from dyshidrotic eczema and dermatitis to hemorrhagic vasculitis, with or without systemic involvement.

Conclusions

We present an unusual clinical manifestation of systemic contact dermatitis, induced by ingestion of Peruvian balsam-containing spices.

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Topic: Contact and occupational dermatitis

Unilateral Granulomatous Rosacea-like Eruption: A Diagnostic Challenge Unmasking Nickel Hypersensitivity from a Dental Implant

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Introduction
Dental alloys containing nickel are widely used in dental implants and prostheses and, although rare, can provoke cutaneous hypersensitivity reactions [1]. Most nickel-related dermatitis arises from direct external exposure, whereas reactions from internal sources such as dental implants are far less frequently recognized [2]. We report the case of a 38-year-old woman presenting with a persistent, unilateral granulomatous rosacea-like eruption that proved refractory to standard medical interventions but achieved complete resolution following the removal of a nickel-containing dental implant.

Materials and Methods
A case report.

Results
A 38-year-old woman with no significant medical history presented with a persistent papular eruption involving the right cheek and neck. The patient noted that the symptoms manifested several months after undergoing a dental implantation procedure on the same side. Physical examination revealed multiple pink, partially confluent papules on the right cheek, extending to the neck. Based on clinical findings, the patient was initially diagnosed with rosacea and treated with doxycycline 100 mg daily for 6 weeks without improvement. Subsequent therapy with pimecrolimus cream was also ineffective. Further investigation was conducted. Digital dermoscopy revealed characteristic yellow globules, suggesting an underlying granulomatous process. An allergen patch test was performed, which demonstrated a positive reaction to nickel and 2-hydroxyethyl methacrylate (HEMA), both of which are found in dental implants and prostheses. To clarify the morphological nature of the lesions, a punch biopsy was conducted. The histopathological analysis revealed a superficial nodular inflammatory infiltrate composed of lymphocytes, plasma cells, and epithelioid histiocytes, accompanied by definitive perifollicular granuloma formation. These findings histologically confirmed the diagnosis of granulomatous rosacea. A combination of topical metronidazole gel 2 times daily and ivermectin cream was prescribed for 12 weeks; however, the skin condition remained unchanged. Due to the failure of multiple topical agents and systemic antibiotics, treatment with low-dose systemic isotretinoin 10mg daily for 30 days was initiated. The treatment was partially effective, but lesions still remained. Subsequent investigation confirmed that the patient's dental implant contained 9% nickel. The decision was made to remove the implant. Within one month of the implant removal, a complete resolution of the skin lesions was observed, further supporting the diagnosis of a metal-induced hypersensitivity reaction.

Conclusions
Nickel is a common allergen and, in rare cases, can cause allergic reactions through internal exposure, such as dental implants. This case highlights the diagnostic challenge of implant-related metal hypersensitivity, which may clinically and

histologically mimic more common inflammatory dermatoses like rosacea. Clinicians should suspect dental alloy allergies in asymmetrical or refractory facial dermatoses, as resolution may require removing the stimulus.

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Topic: Contact and occupational dermatitis

"Natural" does not always mean harmless

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Introduction

Contact eczema, also known as contact dermatitis, is an inflammatory and allergic skin reaction triggered by skin contact with an allergen. Natural cosmetic products, particularly vegetable oils, are an emerging source of allergens that can sometimes cause severe reactions. This case report aims to describe a severe contact eczema of the scalp complicated by disfiguring facial edema following the application of vegetable oils.

Materials and Methods

We report the case of a 20-year-old female patient who developed severe scalp contact eczema after local application of a mixture of cosmetic vegetable oils.

Results

The patient, with no notable medical history including personal or family atopy, presented to the emergency department with an intensely pruritic, oozing erythematous plaque covering the entire scalp, occurring five days after applying a mixture of avocado, jojoba, and lavender oils. Clinical examination revealed poorly defined, confluent plaques with vesicles and pustules, associated with marked facial edema distorting the facial features, with extension of lesions to the neck, décolleté, and upper back. No severe systemic signs were noted (no dyspnea, dysphonia, or swallowing difficulties).

To confirm the allergic origin, a Repeated Open Application Test (ROAT) was performed on a healthy area of the arm using the same oil mixture. The test reproduced a similar erythematous and pruritic reaction, confirming the allergic and oil-specific nature of the reaction. Treatment with potent topical corticosteroids and local care led to rapid improvement, with marked regression of lesions and edema by the second day of therapy.

Conclusions

Application of so-called "natural" or cosmetic products to the hair can trigger severe contact eczema with facial disfigurement, highlighting the need for caution before use.