Nickel-Induced Facial Dermatitis: Adolescents Beware of the Cell Phone

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Recently an alarming increase in the prevalence of allergic contact dermatitis (ACD) to nickel has been noted worldwide, with the majority of cases occurring in women and children. A known risk factor for the development of nickel sensitization is early and prolonged exposure to the allergen. Children frequently encounter nickel in many everyday objects, and it has become apparent that cell phones may constitute a substantial source of nickel exposure. We identified 3 patients with unilateral nickel-induced facial dermatitis elicited by cell phone use.

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Allergic contact dermatitis (ACD) to nickel has increased dramatically over the last 20 years in the United States. The North American Contact Dermatitis Group reported that patch test results positive for nickel increased from 14.2% in 1996-1998[1] to 18.8% in 2003-2004.[2] The majority of the reported cases have involved women and adolescents. The prevalence of nickel ACD in the pediatric population ranges from 17% to 33%.[3-8] Nickel is a ubiquitous allergen with a wide range of exposures from many everyday objects, including zippers, belt buckles, and metal jewelry, to more unusual encounters, such as musical instruments and cell phones.

Cell phones with fashionable designs often are manufactured with metallic accents to make them aesthetically pleasing. These phones are more likely to contain free nickel compared to cell phones with rubber coating intended for rugged use.[9] Although the level of nickel in cell phones exceeds the standards established by the European Union Nickel Directive, cell phones currently are not on the prohibited list.[9,10] Because it is becoming apparent that cell phones can cause ACD through a combination of nickel exposure and prolonged contact, new regulatory measures need to be addressed.[9,11]

A review of the literature from 1980 to present using PubMed to search the terms *nickel* and *cell phones* demonstrated 2 cases in 2000 and 4 additional cases in 2007 and 2008 of cell phones inducing a flare of a preexisting nickel allergy.[9,12-15] Of note, only 1 of these cases was reported in the United States.[15] We recently identified 3 patients with unilateral nickel-induced facial dermatitis (Figure)

A 15-year-old adolescent girl with unilateral nickel-induced facial dermatitis elicited by cell phone use.

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Patients With Nickel-Induced Facial Dermatitis

Age, y	Sex	Duration of Facial Eruption, mo	Response to Nickel Patch Test[a]	DMG Test of Cell Phone[b]
15	Female	4	++	+
13	Female	7	+	+
18	Female	8	++	+

Abbreviation: DMG, dimethylglyoxime.

[a]Patch test results are classified as negative (−), irritant reaction, equivocal/uncertain (+/−), weak positive (+), strong positive (++), or extreme reaction (+++).

[b]DMG test results are classified as positive (+) or negative (−).

that did not respond to conventional treatments but resolved with discontinued cell phone use (Table).

Nickel was named Allergen of the Year in 2008 by the American Contact Dermatitis Society.[16] More recently, cell phone use has been attributed as a cause of nickel ACD, which typically presents as a unilateral facial eruption that primarily affects the cheek and ear. Nickel-induced ACD arises in individuals previously sensitized to the metal, and these individuals need to be made aware of the potential risk for nickel exposure from cell phones so that they can select their cell phones carefully and consider testing them with dimethylglyoxime.

The incidence of adolescents and young adults using cell phones and nickel sensitization are both on the rise, suggesting that unexpected sources of nickel (eg, cell phones) be considered in the setting of facial and auricular dermatitis. Recognition of the cause of the patient's dermatitis and subsequent avoidance of the inciting factor will result in an improvement in their dermatitis and quality of life.

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