

Allergic Nickel Dermatitis Caused by Shaving: Case Report and Assessment of Nickel Release from an Electric Shaver

Jacob P. Thyssen, Torkil Menné and Claus Zachariae

Department of Dermato-Allergology, Copenhagen University Hospital Gentofte, Niels Andersens Vej 65, DK-2900 Hellerup, Denmark. E-mail: jacpth01@geh.regionh.dk

Accepted April 18, 2011.

Nickel allergy is frequent in adult Danes and dermatitis patients (1, 2). The high prevalence is mostly explained by consumer exposure to products that release nickel, e.g. watches, jewellery, buttons, zips, rivets and mobile phones (3–8). It has been debated whether classic dry electric shavers may cause nickel allergy and/or elicit nickel dermatitis. When performing a search on PubMed-MEDLINE, one article was retrieved (search terms: nickel, metal, razor blades, razor, shaver, allergy, dermatitis) (9). This article describes one case of severe allergic nickel dermatitis following exposure to a nickel-releasing shaver.

CASE REPORT

A 44-year-old man was referred with severe facial dermatitis that affected the cheeks and had lasted for one year (Fig. 1). The patient was patch-tested with the European baseline series. Therapy was commenced with topical corticosteroids. A positive patch-test reaction to nickel sulphate (+1) 5% in petrolatum was observed on day four. Dimethylglyoxime (DMG) testing of the patient's electric shaver gave positive test results, whereas no nickel release from his necklaces was detected (Fig. 1). The dermatitis rapidly improved when the patient stopped using the shaver.

DISCUSSION

This case report shows that nickel release from electric shavers may result in allergic nickel dermatitis. Nickel was released from the shaver as assessed by the DMG

test, a test that has a high specificity (10). To our knowledge, no other such case reports have been published. Edman (11) speculated that shaving with a razor blade might be the cause of fragrance contact allergy in male patients, since it may cause small wounds that increase the penetration of applied perfume substances derived from soaps, shaving foams and after-shave lotions. He showed that the risk of fragrance allergy when using razor blades was 2.9 (odds ratio). A similar pathomechanism is likely for the risk of shaving-induced nickel allergy and dermatitis. Nickel release in combination with a disrupted skin barrier is likely to have maintained the dermatitis reaction. In favour of this assumption, Feilzer et al. (9), showed that due to the wearing action of the cutter against the shaving foil during use, many pure nickel particles are produced by electrical shavers. The authors also showed that a new Braun shaving screen was composed of pure nickel, while an old Braun shaving screen was pure nickel coated with a thin layer of palladium and platinum (9). Finally, they identified DMG test positivity in 3 of 4 electrical shavers. In 2008, national Danish television (the Danish Broadcasting Corporation) performed and broadcasted an investigation into nickel release from electric shavers (<http://www.dr.dk/DR1/kontant/2008/10/21143056.htm>). They found that six out of six Braun shavers gave positive DMG test outcomes, whereas only two of nine Phillips shavers gave positive reactions. These two were intended for women. Our case report suggests that nickel release from shavers may indeed result in allergic nickel dermatitis.

REFERENCES

1. Thyssen JP, Johansen JD, Carlsen BC, Menne T. Prevalence of nickel and cobalt allergy among female patients with dermatitis before and after Danish government regulation: a 23-year retrospective study. *J Am Acad Dermatol* 2009; 61: 799–805.
2. Thyssen JP, Linneberg A, Menne T, Nielsen NH, Johansen JD. Contact allergy to allergens of the TRUE-test (panels 1 and 2) has decreased modestly in the general population. *Br J Dermatol* 2009; 161: 1124–1129.
3. Biesterbos J, Yazar K, Lidén C. Nickel on the Swedish market: follow-up ten years after entry into force of the Nickel Directive. *Contact Dermatitis* 2010; 63: 333–339.
4. Brandrup F, Larsen FS. Nickel dermatitis provoked by buttons in blue jeans. *Contact Dermatitis* 1979; 5: 148–150.
5. Lidén C, Norberg K. Nickel on the Swedish market. Follow-up after implementation of the Nickel Directive. *Contact Dermatitis* 2005; 52: 29–35.
6. Thyssen JP, Johansen JD, Zachariae C, Menne T. The out-



Fig. 1. Allergic nickel dermatitis caused by nickel release from an electric shaver.

- come of dimethylglyoxime testing in a sample of cell phones in Denmark. *Contact Dermatitis* 2008; 59: 38–42.
7. Thyssen JP, Menne T, Johansen JD. Nickel release from inexpensive jewelry and hair clasps purchased in an EU country – are consumers sufficiently protected from nickel exposure? *Sci Total Environ* 2009; 407: 5315–5318.
 8. Thyssen JP, Menné T, Johansen JD. Identification of metallic items that caused nickel dermatitis in Danish patients. *Contact Dermatitis* 2010; 63: 151–156.
 9. Feilzer AJ, Muris J, Valentine-Thon E. Electrical shavers as a possible risk factor for metal exposure. *Arch Dermatol* 2006; 142: 1361–1362.
 10. Thyssen JP, Skare L, Lundgren L, Menne T, Johansen JD, Maibach H, et al. Sensitivity and specificity of the nickel spot (dimethylglyoxime) test. *Contact Dermatitis* 2010; 62: 279–288.
 11. Edman B. The influence of shaving method on perfume allergy. *Contact Dermatitis* 1994; 31: 291–292.