

ACKNOWLEDGMENT

This research was supported by the Basic Science Research Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Science, ICT and future Planning (NRF-2015R1A2A2A11000897).

REFERENCES

1. Botchkarev VA, Kishimoto J. Molecular control of epithelial-mesenchymal interactions during hair follicle cycling. *J Invest Dermatol Symp Proc* 2003;8:46-55.
2. Alonso L, Fuchs E. The hair cycle. *J Cell Sci* 2006;119:391-393.
3. Driskell RR, Clavel C, Rendl M, Watt FM. Hair follicle dermal papilla cells at a glance. *J Cell Sci* 2011;124:1179-1182.
4. Kim HM, Lim YY, Kim MY, Son IP, Kim DH, Park SR, et al. Inhibitory effect of tianeptine on catagen induction in alopecia areata-like lesions induced by ultrasonic wave stress in mice. *Clin Exp Dermatol* 2013;38:758-767.
5. Kwack MH, Sung YK, Chung EJ, Im SU, Ahn JS, Kim MK, et al. Dihydrotestosterone-inducible dickkopf 1 from balding dermal papilla cells causes apoptosis in follicular keratinocytes. *J Invest Dermatol* 2008;128:262-269.
6. Kwack MH, Kim MK, Kim JC, Sung YK. Dickkopf 1 promotes regression of hair follicles. *J Invest Dermatol* 2012;132:1554-1560.
7. Philpott MP, Sanders DA, Kealey T. Effects of insulin and insulin-like growth factors on cultured human hair follicles: IGF-I at physiologic concentrations is an important regulator of hair follicle growth in vitro. *J Invest Dermatol* 1994;102:857-861.
8. Ahn SY, Pi LQ, Hwang ST, Lee WS. Effect of IGF-I on hair growth is related to the anti-apoptotic effect of IGF-I and up-regulation of PDGF-A and PDGF-B. *Ann Dermatol* 2012;24:26-31.
9. Shin SH, Bak SS, Kim MK, Sung YK, Kim JC. Baicalin, a flavonoid, affects the activity of human dermal papilla cells and promotes anagen induction in mice. *Naunyn-Schmiedeberg Arch Pharmacol* 2015;388:583-586.

<https://doi.org/10.5021/ad.2017.29.1.105>



Allergy to Gold: The Two Faces of Mercury

Paolo D. Pigatto*, Gianpaolo Guzzi¹

Department of Biomedical, Surgical and Dental Sciences, Unit of Oral Pathology and Medicine, IRCCS Galeazzi Hospital, University of Milan, ¹Department of Dental Toxicology, Italian Association for Metals and Biocompatibility Research, Milan, Italy

Dear Editor:

We have one comment about the interesting report by Kim et al.¹ on the interpretation of contact allergy to gold in their study. The authors state that, “...common allergens in the present study were gold sodium sulfate, nickel

sulfate, and potassium dichromate¹.” They focus their discussion on “the increasing demand by dental patients for precious metal alloys and tooth-colored restoration rather than amalgam¹.” Although type IV hypersensitivity reaction to gold seems to have increased in recent years,

Received September 24, 2015, Accepted for publication December 18, 2015

*Current affiliation: Paolo D. Pigatto, Department of Biomedical, Surgical and Dental Sciences, Unit of Dermatology, IRCCS Galeazzi Hospital, University of Milan, Milan, Italy.

Corresponding author: Gianpaolo Guzzi, Department of Dental Toxicology, Italian Association for Metals and Biocompatibility Research, Via A. Banfi, 4, 20122 Milan, Italy. Tel: 39-2-782561, Fax: 39-2-36735540, E-mail: gianpaolo_guzzi@fastwebnet.it

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/4.0>) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

Copyright © The Korean Dermatological Association and The Korean Society for Investigative Dermatology

however, patch testing is the most sensitive diagnostic test but is not specific for gold. In fact, gold cross-react with mercury in both humans and experimental animals²⁻⁴, a cross-reaction is likely to be the cause of about 10% ~ 20% of the reactions reported to gold (Nakada et al.⁴ and our unpublished study). For quantitative analysis, atomic electronic structures of gold and mercury are very similar and very close in the periodic table, leading to an atomic mimicry by cross-reactivity between mercury and gold⁴. Of note, mercury has atomic number 80 and gold, with the slightly less atomic number ($Z=79$), do share their electrons giving stable metallic bond. Likewise, in type III hypersensitivity reactions (or Arthus-type reactions), it is interesting to note that both gold and mercury may induce pathological processes mediated by circulating immune complexes⁵. It may therefore be worth considering this possibility when examining patients with contact allergy to gold and cross-reactions between gold and mercury should not be forgotten.

REFERENCES

1. Kim TW, Kim WI, Mun JH, Song M, Kim HS, Kim BS, et al. Patch testing with dental screening series in oral disease. *Ann Dermatol* 2015;27:389-393.
2. Osawa J, Kitamura K, Ikezawa Z, Hariya T, Nakajima H. Gold dermatitis due to ear piercing: correlations between gold and mercury hypersensitivities. *Contact Dermatitis* 1994;31:89-91.
3. Pigatto PD, Guzzi G. Oral lichenoid lesions: more than mercury. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2005;100:398-400.
4. Nakada T, Higo N, Iijima M, Nakayama H, Maibach HI. Patch test materials for mercury allergic contact dermatitis. *Contact Dermatitis* 1997;36:237-239.
5. Pigatto P, Minoia C, Ferrucci S, Ronchi A, Brambilla L, Guzzi G. Prevalence of mercury allergy and treatment of adverse events to dental materials. *Allergy* 2013;68:2.

<https://doi.org/10.5021/ad.2017.29.1.106>



Linear Psoriasis along Blaschko's Lines

Sang Jin Kim, You Chan Kim

Department of Dermatology, Ajou University School of Medicine, Suwon, Korea

Dear Editor:

Linear psoriasis, a rare form of psoriasis, is characterized by the linear distribution of psoriatic lesions along Blaschko's lines^{1,2}. Histopathologically, the classic features of psoriasis may be observed^{1,2}. Herein, we report a case of linear psoriasis on the right side of the trunk.

A 14-year-old girl presented with a 1-year history of occasionally pruritic, well-defined, "S"-shaped, erythematous, and scaly patches from the right side of the pubic area to

the back (Fig. 1). There were no nail or scalp lesions and no personal or family history of psoriasis. A skin biopsy from the back exhibited parakeratosis, elongation of rete ridges, Munro's microabscess, dilated tortuous blood vessels, and perivascular lymphocytic infiltration (Fig. 2). With the unilateral distribution in a linear pattern, the lesion was diagnosed as linear psoriasis and was treated with a topical betamethasone dipropionate/calcipotriol ointment. After 4 weeks, the lesion improved considerably

Received October 27, 2015, Revised December 11, 2015, Accepted for publication December 18, 2015

Corresponding author: You Chan Kim, Department of Dermatology, Ajou University School of Medicine, 164 WorldCup-ro, Yeongtong-gu, Suwon 16499, Korea. Tel: 82-31-219-5190, Fax: 82-31-219-5189, E-mail: maychan@ajou.ac.kr

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/4.0>) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

Copyright © The Korean Dermatological Association and The Korean Society for Investigative Dermatology