

Facial Dermatitis to Mercaptobenzothiazole

Catarina Araújo^{*}, Cristina Resende, Teresa Pereira and Celeste Brito

Dermatology Department, Hospital de Braga, Braga, Portugal

^{*}Corresponding author: Catarina Araújo, Serviço de Dermatologia e Venereologia, Hospital de Braga, Sete Fontes – São Victor, 4710-243 Braga, Portugal, Tel: +351-253-027-000; E-mail: catarina.portela.araujo@gmail.com

Received date: Mar 31, 2014, Accepted date: Apr 28, 2014, Published date: Apr 30, 2014

Copyright: © 2014 Araújo C, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Abstract

Introduction: Allergic contact dermatitis to mercaptobenzothiazole and its derivatives has been increasingly recognized in industrialized countries because of their widespread use in polymerization of synthetic rubber.

Case report: A 61 years old non atopic man, woodworker, with a 12-month history of itching, erythema, infiltration of genius region of face and extension to posterior cervical region. Epicutaneous tests were performed with enlarged Basic series, Rubber series, wood series, cosmetics series, plastics series from Portuguese Contact Dermatitis group series and fragments of the work protection mask. It was found positive for mercaptobenzothiazole (++), mercapto mix (++) and elastic band of mask (++) in evaluation at 96 h and 7 days.

Conclusions: Despite being well known allergens, mercaptobenzothiazole and its derivatives are still widely used in the rubber industry. We emphasize this case as an example of important occupational disability caused by allergic contact dermatitis.

Keywords: Allergic contact dermatitis; Occupational disease; Mercaptobenzothiazole.

Series of patch tests of the Portuguese Group for the Study of Contact Dermatitis.

Introduction

Allergic contact dermatitis to mercaptobenzothiazole (MBT) and its derivatives has been increasingly recognized in industrialized countries because of their widespread use in polymerization of synthetic rubber.

Case Report

A 61 years old non atopic man, woodworker, with a 12-month history of itching, erythema, infiltration of genius region of face and extension to posterior cervical region, refractory to high potency topical corticosteroid and oral antihistamine. Epicutaneous tests were performed with enlarged Basic series, Rubber series, wood series, cosmetics series, plastics series from Portuguese Contact Dermatitis group series and fragments of the work protection mask. It was found positive for mercaptobenzothiazole (++), mercapto mix (++) and elastic band of mask (++) in evaluation at 96h and 7 days (Figure 1).

The remaining tested allergens, including other parts of the body mask, were negative. Prick test to wood was negative.

Discussion

Chemical additives are frequently used in polymerization of the rubber as vulcanization accelerators, whereby the list of products containing rubber mercaptobenzothiazole is so long [1]. In addition to the rubber industry, they are used as fungicides and anti-corrosion products in the metal industry and mining industry to harvest gold and silver. The mercaptobenzothiazole and mercapto mix are well known allergens and their clinical importance as potential triggers of allergic contact dermatitis is decisive, being included in the Basic



Figure 1: Positive reactions to mercaptobenzothiazol, mercapto mix and elastic band of mask, at 96 h.

DCA to mercaptobenzothiazole can be observed in both children and adults but seems to be more frequent in males, probably due to the greater use of clothing with rubber additives.

Interestingly our patient developed allergic contact dermatitis to the the elastic cuff of the work protection mask, indicating the importance of the location when dermatitis is assessed and that

mercaptobenzothiazole may be present in other sources of exposure of rubber.

Contact allergy to rubber in elastic textiles is well described. The low molecular weight group of mercaptobenzothiazole, consequent skin permeability and the existence of the thiol group capable of binding to amino acids and proteins are potential factors that favor sensitization [2-4].

Recent data in literature describes a relationship between allergic activity of mercaptobenzothiazole and its compounds and occupational therapy in one third of patients [5-6] although it may be variable depending on the series [7]. The relatively low prevalence of allergy that has been observed may favor a low sensitizing potential. However, once the worker sensitized, it may be cause of inability either to the profession or to the activities of daily living.

Given that our patient had positive patch test reactions to both MBT and his own elastic protection masks, he should be advised to be aware of MBT in elastane garments as a potential cause of textile dermatitis.

References

1. Adams AK, Warshaw EM (2006) Allergic contact dermatitis from mercapto compounds. *Dermatitis* 17: 56-70.
2. Belsito DV (1989) The immunologic basis of patch testing. *J Am Acad Dermatol* 21: 822-829.
3. Rietschel RL, Fowler JF (2001) Fisher's contact dermatitis. The pathogenesis of allergic contact hypersensitivity. Lippincott Williams & Wilkins, Philadelphia, pp 1-7.
4. Wang XS, Tabor MW (1988) Studies of the reactivity of morpholine, 2-mercaptobenzothiazole and 2 of their derivatives with selected amino acids. *Contact Dermatitis* 19: 16-21.
5. Rietschel RL, Mathias CG, Fowler JF Jr, Pratt M, Taylor JS, et al. (2002) Relationship of occupation to contact dermatitis: evaluation in patients tested from 1998 to 2000. *Am J Contact Dermat* 13: 170-176.
6. Dickel H, Kuss O, Schmidt A, Diepgen TL (2002) Occupational relevance of positive standard patch-test results in employed persons with an initial report of an occupational skin disease. *Int Arch Occup Environ Health* 75: 423-434.
7. Nettis E, Marcandrea M, Colanardi MC, Paradiso MT, Ferrannini A, et al. (2003) Results of standard series patch testing in patients with occupational allergic contact dermatitis. *Allergy* 58: 1304-1307.