

Christmas tree dermatitis caused by colophonium allergy

Lise Gether, Mette Gyldenløve and Jacob P. Thyssen

Department of Dermatology and Allergy, Herlev-Gentofte Hospital, University of Copenhagen, 2900 Hellerup, Denmark

doi:10.1111/cod.12798

Key words: allergic contact dermatitis; allergy; case report; Christmas; colophonium; colophony; contact dermatitis; rosin.

Colophonium, also known as colophony or rosin, is a sticky natural substance derived from pine and spruce trees, both of which are species of the family Pinaceae. It is

used industrially in a great variety of common products, such as adhesives, cosmetics, and toiletries. Colophonium allergy is common, and a European study from 2015 showed that 2% of adolescents were already affected (1). Here, we describe a patient with colophonium allergy who reacted after decorating a Christmas tree.

Correspondence: Lise Gether, Department of Dermato-Allergology, Herlev-Gentofte Hospital, University of Copenhagen, Niels Andersens Vej 65, 2900 Hellerup, Denmark. Tel: +45 38673211. E-mail: lise.gether.01@regionh.dk

Conflicts of interest: The authors have no conflict of interests to declare.

Case Report

A 28-year-old atopic woman, who had been diagnosed with colophonium allergy as a child, was referred to

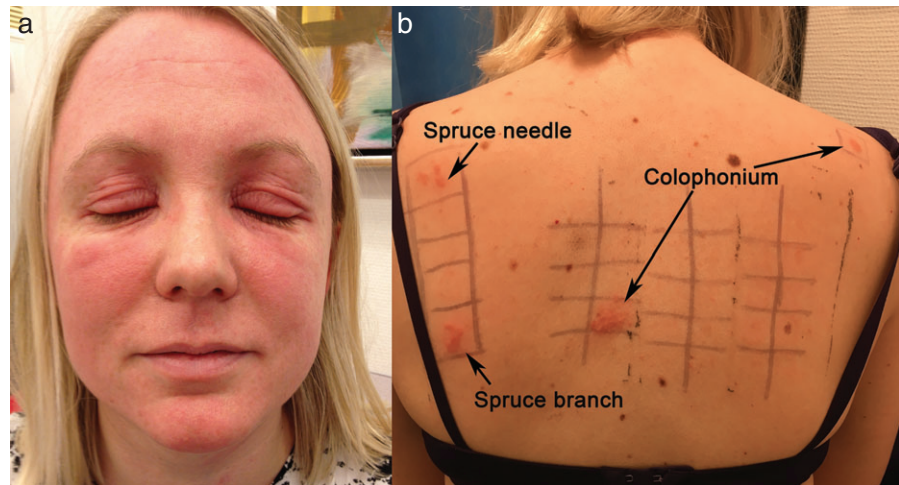


Fig. 1. Severe facial dermatitis with swelling, especially around the eyes (a). Patch test on day 3 with reactions to colophonium, spruce needle, and spruce branch (b).

a dermatology outpatient clinic with acute onset of dermatitis on her hands, arms and face after having decorated a Christmas tree (Fig. 1, File S1).

The patient reported numerous suspected exposures to colophonium-containing products in the past. As a child, she had played handball, in which an anti-slippage, and often colophonium-containing, substance is applied on the ball to provide a good grip. At the age of 12 years, the patient had been treated for plantar warts with a topical product. The therapy had caused an allergic contact dermatitis reaction on her feet, and colophonium allergy was confirmed by a patch test. The patient had never experienced respiratory or skin symptoms after contact with spruce branches or when walking in pine forests.

At Christmas time in 2015, the patient's boyfriend carried the Christmas tree (of the species *Abies nordmanniana*) inside their apartment, and the patient then decorated the tree. She had direct contact with spruce branches for ~1 h and did not use gloves. On the following day, dermatitis gradually developed on her hands and forearms, and the rash later rapidly spread to the neck and face (Fig. 1). Treatment with a mild hydrocortisone cream and oral antihistamines had no effect. As the condition further deteriorated on the next day, a physician injected antihistamine (clemastine 2 mg) and glucocorticoid (methylprednisolone 40 mg) intramuscularly, as an allergic reaction was suspected. The patient's neighbour discarded the Christmas tree on the same day. However, no remission occurred, and oral prednisolone 25 mg daily was prescribed for 3 days. Despite this, severe dermatitis persisted, and the prednisolone therapy was continued for another 4 days. The dermatitis gradually

resolved, and a dermatologist prescribed topical hydrocortisone 17-butyrate cream, which eventually resulted in complete resolution of the dermatitis.

Patch testing was performed with the European baseline series. Moreover, the patient's personal care products, and spruce needle and branches, were applied on the back 'as is'. Accidentally, colophonium was applied on the back along with the other baseline series allergens. Although the colophonium patch was quickly wiped off and placed instead on the patient's right shoulder, a reaction to colophonium occurred after only a few minutes. Readings were performed on day (D) 2 and D3. Positive reactions were observed to spruce needle (++ on D2 and D3), spruce branch (++ on D2 and D3) and colophonium (++ on D2; +++ D3) on both exposed sites (Fig. 1).

Discussion

Colophonium allergy is thought to be the most common cause of Christmas tree allergy, although the frequency of this problem is unknown. A survey on respiratory or other allergic symptoms was performed in allergic patients during the Christmas season in a Canadian study from 1970. In 7% of these patients, the occurrence of allergies could be related to Christmas tree exposure (2). We recently reported 2 cases of Christmas tree allergy, 1 with dermatitis and the other with respiratory symptoms (3). We conclude that, in cultures where home decoration of Christmas trees is a tradition, patients with colophonium allergy should be informed about the risk of allergic contact dermatitis and possibly airborne exposure when visiting friends or family with Christmas trees.

References

- 1 Belloni Fortina A, Cooper S M, Spiewak R et al. Patch test results in children and adolescents across Europe. Analysis of the ESSCA Network 2002–2010. *Pediatr Allergy Immunol* 2015; **26**: 446–455.
- 2 Wyse D M, Malloch D. Christmas tree allergy: mould and pollen studies. *Can Med Assoc J* 1970; **103**: 1272–1276.
- 3 Gyldenløve M, Nepper-Christensen S, Thyssen J P, Faurschou A. The sweet Christmas rash. *Ugeskr Laeger* 2013; **175**: 3025–3026.