

Allergic contact dermatitis caused by both eucalyptus oil and spruce oil

Running Title: Eucalyptus and spruce oil

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The authors share no conflict of interest

This study was not supported by any person or institution

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2 Abstract

3 Infantum cold® (Sedomed İlaç Pazarlama-Konya-Turkey) is an inhalant ointment that helps
4 to relieve nasal congestion due to upper respiratory tract infections. It contains only
5 eucalyptus oil and spruce oil. Although many reports present allergic contact dermatitis(ACD)
6 due to eucalyptus oil and spruce oil separately there are no cases caused by both oil. We
7 present a case of a pediatric patient who developed an ACD secondary to application of
8 Infantum cold®. We believe that ACD due to eucalyptus oil and spruce oil might be more
9 common than currently described in the literature. We encourage others to test with
10 eucalyptus oil and spruce oil if there is clinical indication.

11 Introduction

12 Allergic contact dermatitis (ACD) is one of the two types of contact dermatitis, that is, it represents
13 the manifestations of an allergic response caused by contact with a substance, the other type being
14 irritant contact dermatitis. It represents an eczematous pathology, wherein a specific exogenous
15 allergen triggers an inflammatory response through the mechanism of delayed hypersensitivity.

16 Infantum cold® (Sedomed İlaç Pazarlama-Konya-Turkey) is an inhalant ointment that helps
17 to relieve nasal congestion due to upper respiratory tract infections. Nowadays it is prescribed
18 frequently to children for the reason that it's not a systemic treatment. It contains only
19 eucalyptus oil and spruce oil. It is applied on the sweat collaret

20 Although many reports present allergic contact dermatitis(ACD) due to eucalyptus oil [1-7]
21 and spruce oil [8] separately there are no cases caused by both oil. We present a case of a
22 pediatric patient who developed an ACD secondary to application of Infantum cold®.

23 Case

1 A 8 year-old girl presented with a 3 day history of erythematous lesions on her neck. Her
2 history showed that these lesions apperared 1 day after the use of an inhalant oinment. She
3 wasn't taking any other medication. She had been applying it every night on her pyjamas'
4 collarets. On examination, dusky red colour nummular patch of 6 cm diameter was seen on the neck
5 and a similar smaller nummule measuring 4 cm diameter upper right clavicular area. Her
6 examination revealed sharp bordered erythematous maculer lesion on her neck and upper
7 chest(Figure1). Patch testing was performed with the European baseline series from
8 Chemotechnique Diagnostics (Malmö, Sweden). Finn Chambers® (8 mm; SmartPractice®,
9 Phoenix, AZ, USA) on Scanpor® tape (Norgesplaster A/S, Vennesla, Norway) were used.
10 The spruce oil was purchased commercially as 100% , and diluted to 5% in pet. by a pharmacist.
11 The occlusion period was 48 hours. The initial reading was half an hour after the removal of
12 the patches. A second reading was done at day D4 according to the ICDRG guidelines. No
13 reactions were seen to the European baseline series components. A ++ reaction was noted
14 with the spruce oil and +++ reaction with the eucalyptus oil. Both eucalyptus and spruce oils
15 were tested in the same way in 3 healthy controls, with negative results.

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17 Discussion

18 During the recent years, inhaler ointments have become popular and are widely available in
19 Turkey. Most of the ointments contain eucalyptus and spruce oils. Rudzki et al. reported
20 multiple sensitivity to essential oils used in cosmetics for the first time in 1976 [1]. Nowadays
21 essential oils in cosmetics causing allergic contact dermatitis is well known. Contact
22 dermatitis from eucalyptus oil has been well documented. It is present throughout eucalyptus
23 trees in the fruits, leaves, bark, and buds[5]. Four cases of contact dermatitis caused by
24 eucalyptus plant [6], Vicks VapoRub [7] or aromatherapy [4,8] with eucalyptus have been
25 reported on PubMed. But we didn't find any report about allergic contacy dermatitis due to

sruce oil but only one case of occupational allergic contact dermatitis due to spruce sawdust[9] .

Causality assesment of suspected adverse drug reaction(ADR)s using Naranjo's scale our case was categorized as definite, the severityof reaction (using Hartwig scale) was mild. On the basis of the Modified Schumock and Thornton scale the reaction of the suspected ADRs was probably preventable[10-12] .

We believe that ACD due to eucalyptus oil and spruce oil might be more common than currently described in the literature. We encourage others to test with eucalyptus oil and spruce oil if there is clinical indication.

Conclusion

Infantum cold® an inhalant ointment contains many ingredients that are potential sensitizing agents, including eucalyptus oil and spruce oil. Contact dermatitis from eucalyptus oil has been well documented. However, this is the first case of ACD secondary to the both eucalyptus and spruce oil.

REFERENCES

1. Rudzki E, Grzywa Z, BruoW S (1976). Sensitivity to 35 essential oils. Contact Dermatitis. 1976;2: 196–200.
2. Schaller M, Korting H C. Allergic airborne contact dermatitis from essential oils used in aromatherapy. Clin Exp Dermatol.1995;20: 143–45.
3. Selvaag E, Holm J-Ø, Thune P. Allergic contact dermatitis in an aroma therapist with multiple sensitizations to essential oils. Contact Dermatitis.1995;33: 354–55.
4. Dharmagunawardena B, Takwale A, Sanders K J, Cannan S, Rodger A, Ilchyshyn A. Gas chromatography: an investigative tool in multiple allergies to essential oils. Contact Dermatitis.2002;47:288–92.
5. Zrira S, Bessiere JM, Menut C, et al. Chemical composition of the essential oil of nine eucalyptus species growing in Morocco. Flavour Fragr J 2004;19:172–5.
6. Gyldenløve M, Menné T, Thyssen JP. Eucalyptus contact allergy Contact Dermatitis.2014;71(5):303-04.

- 1 7. Noiles K, Pratt M. Contact dermatitis to Vicks VapoRub. *Dermatitis*.2010;21: 167–
2 69.
- 3 8. Schaller M, Korting H C. Allergic airborne contact dermatitis from essential oils
4 used in aromatherapy. *Clin Exp Dermatol*.1995;20:143–45.
- 5 9. Estlander T, Jolanki R, Alanko K, Kanerva L. Occupational allergic contact
6 dermatitis caused by wood dusts.*Contact Dermatitis*.2001;44(4):213-17.
- 7 10. Naranjo CA, Busto U, Sellers EM, Sandor P, Ruiz I, Roberts EA, et al. A method
8 for estimating the probability of adverse drug reactions. *Clin Pharmacol Ther*
9 1981;30(2):239-45.
- 10 11. Hartwig SC, Siegel J, Schneider PJ. Preventability and severity assessment in
11 reporting adverse drug reactions. *Am J Hosp Pharm* 1992;49(9):2229-32.
- 12 12. Lau PM, Stewart K, Dooley MJ. Comment: hospital admissions resulting from
13 preventable adverse drug reactions. *Ann Pharmacother* 2003;37(2):303-4; author
14 reply 304-5.
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1 **Figure Legend:**

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3 Figure1: Sharp bordered erythematous maculer lesion on her neck and upper chest.

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