

Access this article online

Quick Response Code:



Website:

<https://eurasianjpulmonol.org>

DOI:

10.14744/ejp.2023.1101

Propolis: Is it harmless to the extent that it is natural?

Hatice Çelik Tuğlu, Fatma Dindar Çelik, Melis Yağdıran, Onur Telli, Özgür Akkale, Kurtuluş Aksu

ORCID:

Hatice Çelik Tuğlu: 0000-0003-1185-7803

Fatma Dindar Çelik: 0000-0001-7694-8365

Melis Yağdıran: 0000-0002-0384-3957

Onur Telli: 0000-0001-5053-827X

Özgür Akkale: 0000-0003-4848-6014

Kurtuluş Aksu: 0000-0001-6195-1158

Abstract:

Propolis is a resinous substance produced from tree buds and bark, digested by bees, and is mainly composed of resins, wax, pollen, and essential oils. Propolis is used in traditional medicine due to its anti-inflammatory, antioxidant, antiseptic, and local anesthetic properties. The increase in the use and popularity of propolis-containing products coincides with a linear increase in the incidence of propolis-related allergic contact dermatitis. In this report, we present a case of local allergic contact dermatitis that developed after local propolis application for wound care in a 69-year-old male patient.

Keywords:

Allergy, contact dermatitis, propolis, wound care

Introduction

Propolis is a resinous substance obtained from tree buds and bark, and digested by bees. It consists mainly of resins, wax, pollen, and essential oils. Due to its antiseptic, anti-inflammatory, and antioxidant properties, propolis has attracted the attention of manufacturers in medical, cosmetic, and hygiene product sectors.^[1] It has been used to treat wounds, psoriasis, atopic dermatitis, aphthous ulcers, warts, and herpes.^[2] This increased use has led to a rise in the frequency of allergic contact dermatitis caused by propolis.^[1] Here, we present a case of allergic

contact dermatitis that developed after local propolis application for wound care.

Case Report

A 69-year-old male patient developed an abrasion on the extensor surface of his right leg and repeatedly applied a cream containing *Triticum vulgare* aqueous extract, silver sulfadiazine, and propolis to the abraded area. However, in the following days, instead of healing, itching and redness developed in this area [Fig. 1]. The patient, whose complaints continued for two weeks, suspected that the itchy lesions were due to propolis and

How to cite this article: Çelik Tuğlu H, Dindar Çelik F, Yağdıran M, Telli O, Akkale Ö, Aksu K. Propolis: Is it harmless to the extent that it is natural?. Eurasian J Pulmonol 2024;26:144-146.

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: kare@karepb.com

Division of Immunology and Allergy, Department of Pulmonology, University of Health Sciences, Ankara Atatürk Sanatoryum Training and Research Hospital, Ankara, Türkiye

Address for correspondence:

Dr. Hatice Çelik Tuğlu,
Division of Immunology and Allergy, Department of Pulmonology, University of Health Sciences, Ankara Atatürk Sanatoryum Training and Research Hospital, Ankara, Türkiye.
E-mail: haticecelik830@gmail.com

Received: 28-10-2023

Revised: 09-11-2023

Accepted: 05-12-2023

Published: 26-01-2024

applied propolis to his wrist for testing purposes. On the second day following this application, similar lesions formed in this area [Fig. 2].

The patient had no known history of allergies. His findings were evaluated as compatible with propolis-related allergic contact dermatitis by the dermatology clinic. He was started on local treatment with betamethasone and fusidic acid, oral 0.5 mg/kg/day methylprednisolone, and oral antihistamine treatment. Following the initiation of treatment, the patient experienced a rapid clinical response, and his complaints resolved.

Discussion

Propolis is used in traditional medicine due to its anti-inflammatory, antioxidant, antiseptic, and local anesthetic properties.^[3] The increase in the use of products containing propolis parallels the increase in the incidence of propolis-related allergic contact dermatitis. Among the more than 300 components it contains, caffeic acid esters (phenylethyl caffeate and 3-methyl-2-butenyl caffeate) have been associated with hypersensitivity to propolis.^[4,5]

Patch tests are used to confirm the suspicion of propolis-induced contact eczema.^[6] Patch tests were applied to

17,784 patients at the Allergology Polyclinic of the Department of Dermatology, Venereology, and Dermatocology at Semmelweis University between 1992 and 2021. In this study, the propolis sensitivity rate was found to be 2.6%.^[7] In another study, patch test reactions for any propolis type ranged between 1.3% and 5.8%.^[8] However, clinicians need to be aware that cross-sensitivity, fragrance mixture I, and colophony are frequently observed against propolis and *Myroxylon pereirae* due to common components.^[6] Contact allergy to propolis has been reported in individuals with occupational exposure in the past, but most current cases result from the topical application or oral use of propolis-containing products.^[9] Ingested propolis is associated with allergic contact cheilitis, stomatitis, perioral eczema, lip edema, mouth pain, and shortness of breath.^[5]

Propolis can be found in materials frequently used in daily life, such as creams, shampoos, and toothpaste. Since it is considered natural and harmless by users, it can be used excessively without control. However, it should be used with caution as it causes hypersensitivity reactions. This case is presented to raise awareness that natural products can also cause undesirable side effects.



Figure 1: Lesions on the leg surface at the time of admission



Figure 2: Area of propolis application on the patient's wrist

Informed Consent

Written informed consent was obtained from the patient for the publication of the case report and the accompanying images.

Conflicts of interest

There are no conflicts of interest.

Financial support and sponsorship

Nil.

Peer-review

Externally peer-reviewed.

Authorship Contributions

Concept – H.Ç.T., F.D.Ç., M.Y., O.T., Ö.A., K.A.; Design – H.Ç.T., F.D.Ç., M.Y., O.T., Ö.A., K.A.; Supervision – H.Ç.T., F.D.Ç., M.Y., O.T., Ö.A., K.A.; Funding – H.Ç.T., F.D.Ç., M.Y., O.T., Ö.A., K.A.; Materials – H.Ç.T., F.D.Ç., M.Y., O.T., Ö.A., K.A.; Data collection &/or processing – H.Ç.T., F.D.Ç., M.Y., O.T., Ö.A., K.A.; Analysis and/or interpretation – H.Ç.T., F.D.Ç., M.Y., O.T., Ö.A., K.A.; Literature search – H.Ç.T., F.D.Ç., M.Y., O.T., Ö.A., K.A.; Writing – H.Ç.T., F.D.Ç., M.Y., O.T., Ö.A., K.A.; Critical review – H.Ç.T., F.D.Ç., M.Y., O.T., Ö.A., K.A.

References

1. Nyman G, Hagvall L. A case of allergic contact cheilitis caused by propolis and honey. *Contact Dermatitis* 2016;74(3):186–7. [\[CrossRef\]](#)
2. de Groot AC. Propolis: a review of properties, applications, chemical composition, contact allergy, and other adverse effects. *Dermatitis* 2013;24(6):263–82. [\[CrossRef\]](#)
3. Münstedt K, Hellner M, Hackethal A, Winter D, von Georgi R. Contact allergy to propolis in beekeepers. *Allergol Immunopathol (Madr)* 2007;35(3):95–100. [\[CrossRef\]](#)
4. Burdock GA. Review of the biological properties and toxicity of bee propolis (propolis). *Food Chem Toxicol* 1998;36(4):347–63. [\[CrossRef\]](#)
5. Walgrave SE, Warshaw EM, Glesne LA. Allergic contact dermatitis from propolis. *Dermatitis* 2005;16(4):209–15. [\[CrossRef\]](#)
6. Navarro-Triviño FJ, Ruiz-Villaverde R. Allergic contact dermatitis of head and neck by propolis contained in a shampoo. *Contact Dermatitis* 2020;82(6):409–10. [\[CrossRef\]](#)
7. Mezei D, Németh D, Temesvári E, Pónyai G. A new-old allergen: propolis contact hypersensitivity 1992-2021. *Orv Hetil* 2022;163(39):1559–67. Hungarian. [\[CrossRef\]](#)
8. Nyman GSA, Giménez-Arnau AM, Grigaitiene J, Malinauskiene L, Paulsen E, Hagvall L. Patch Testing with Propolis of Different Geographical Origins in a Baseline Series. *Acta Derm Venereol* 2021;101(11):adv00591. Erratum in: *Acta Derm Venereol* 2022;102:adv00775. [\[CrossRef\]](#)
9. Giusti F, Miglietta R, Pepe P, Seidenari S. Sensitization to propolis in 1255 children undergoing patch testing. *Contact Dermatitis* 2004;51(5-6):255–8. [\[CrossRef\]](#)