

Allergic contact dermatitis to cod liver oil contained in a topical ointment

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Cod liver oil is an oil extracted from
cod livers and it is a rich source of
vitamin A, vitamin D and omega-3

fatty acids. It can be used orally to combat rickets and bone diseases and to improve heart function and topically for its re-epithelialization properties.

We report the first case of allergic contact dermatitis to cod liver oil contained in an ointment.

Case Report

An 80-year-old non-atopic woman with hepatitis C viruses-related hepatopathy and post-thrombotic leg ulcers in phase of re-epithelialization localized on the lowest third part of the right leg, came to our observation because of the onset of a severe and intensely itching papulous-vesicular reaction localized on the right leg and on the back. This reaction appeared 10 days before our observation, simultaneously with the use of emollient creams.

The symptoms regressed after the suspension of the treatment and 10-day therapy with topical corticosteroids (mometasone furoate) and oral antihistamine (cetirizine).

After healing, the patient was patch tested with the Italian Society of Allergological, Occupational and Environmental Dermatology (SIDAPA) standard series and with the following topics used contemporaneously with the onset of cutaneous manifestation: Connettivina[®] cream (Fidia Farmaceutici S.p.A., Abano Terme, Italy), Locobase[®] ointment (Yamanouchi Pharma S.p.A., Carugate, Italy), Dermolichtena[®] cream (UCB Pharma S.p.A., Pianezza, Italy), Dermovitamina[®] ointment (Pasquale S.R.L., Sesto Fiorentino, Florence, Italy). Patch tests were performed using the Al-chambers[™] (Euromedical, Calozicorte, LC, Italy). Readings were made after 2 and 4 days. A very strong vesico-bollos positive reaction (++) was observed on day 2 (D2) to Dermovitamina[®] ointment as is. The ingredients of this ointment are cod liver oil at the concentration of 40%, white wax and pet. The patient was also patch tested with all these ingredients: cod liver oil (Marco Viti Farmaceutici S.p.A., Mozzate, Italy), at dilutions of 40%, 20%, 10%, and 5% in pet. white wax (as is) and pet. (as is). Patch tests with vitamin A acetate (Polichimica, Bologna, Italy) 5% pet. and with vitamin D₃ (Abiogen Pharma S.p.A., Pisa, Italy) 5% pet. were also performed.

Positive erithemato-vesicular reactions (++) were observed on D2 and D4 only to cod liver oil at all

the above-mentioned dilutions. 10 healthy subjects patch tested as controls with Dermovitamina[®] ointment as is and with cod liver oil at the dilutions of 40%, 20%, 10%, and 5% in pet. showed no reactions.

Discussion

The benefits of cod liver oil are well known for years. The use of this product is still actual for the diffuse tendency to utilize natural products as cod liver oil is.

Cod liver oil is used topically for dressing of wounds, burns, haemorrhoids, and abrasions because it accelerates the epithelial and the vascular component of wound healing (1). Moreover, topical cod liver oil is used in diaper rash and contact dermatitis and in other skin disorders because of the bland and soothing effects associated with its oily nature and for its eutrophic and epithelialization properties presumably related to vitamin A and D markedly high in cod liver oil.

An extensive review of the literature on cod liver oil showed no adverse effects when it is applied topically (2).

This is the first case reported of allergic contact dermatitis by cod liver oil. Test results allow us to exclude that vitamin A and D are responsible for the skin reaction. Therefore, the substance responsible for the allergic skin reaction is actually unidentified. However, if we compare skin reactions obtained with the patient's ointment (which had been opened 2 years before and occasionally used by the patient in the past to treat little wounds) as is, with the result of the patch test made with a new preparation of pure cod liver oil diluted at that concentration in which it is contained in the product (40%), we can hypothesize that the sensitization agent is a cod liver oil component that could increase with the ageing of the product.

To conclude we should be alert about the capacity of cod liver oil to induce contact sensitization considering its use for self-medication on compromised skin.

References

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