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Apparent Hyperpigmented Skin Blemish That Has Been Incidentally Treated with Oral Krill Oil: A Case Report

Şenay Koçakoğlu[1*] and Ersin Akpınar[2]

[1]*Şenay Kocakoğlu: Harran University Medical Faculty Department of Family Medicine, Şanlıurfa, Turkey.*

[2]*Ersin Akpınar: Çukurova University Medical Faculty Department of Family Medicine, Adana, Turkey.*

[*]Correspondence:
Ersin AKPINAR, MD, Professor of Family Medicine, Çukurova University Family Medicine Department, Balcali, Saricam – 01330 Adana / Turkey, Tel: +90322 – 338 6060 / (Ext:3087); +90322 – 344 3501 (Outpatient Clinics); Fax: +90322- 338 6023.

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ABSTRACT

Background: *Krill oil is considered to be remarkable with its balanced content and its high bioavailability. There are various studies on different uses and benefits of krill. Astaxantin, one of the content of krill, was researched for cosmetic benefits like skin wrinkles and age spots. There are no sufficient number of studies on oral krill oil use for hyperpigmentation of the skin.*

Case presentation: *In this case report we present a patient who had an apparent hyperpigmented blemish on his face and his skin appearance returned to normal after oral krill oil usage. We aimed to draw attention to the probable cosmetic benefits of krill oil on skin hyperpigmentation disorders.*

Conclusion: *Skin blemish on the face is a cosmetic problem that negatively affects human psychology. The presented case preoccupies that oral krill oil can be used as an effective and non-invasive alternative treatment way for hyperpigmented areas of the skin and performing further studies on this subject may be beneficial.*

Keywords

Krill oil, Hyperpigmentation, Bioavailability, Astaxanthin.

Background

Krill is a form of marine crustaceans that are quite small in size. Natural habitat of krill is known to be Antarctic Ocean. Krill is a remarkable natural food with its content and high bioavailability [1,2]. American Food and Drug Administration (FDA) called krill as "Generally Recognized as Safe (GRAS)" so krill oil can be safely preferred as a natural food source [3].

Docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA) which are omega 3 poly unsaturated long chain essential fatty acids (Ω-3 PUFAs) exist in the krill [4]. These fatty acids have an important role in human metabolism and prevention and treatment of chronic diseases, so new sources of Ω- 3 and therefore krill are noteworthy [5]. Astaxantin, which is one of the contents of krill is reported to be beneficial for improving hyperpigmentation [6].

Case Presentation

A 47 years old male patient admitted to our family medicine clinic for his routine periodic controls. His physical examination and blood test values were normal.

A review of the patient's previous recorded data showed an apparent hyperpigmented skin blemish warning on his face until birth. Surprisingly, this blemish was observed to disappear. When he was questioned whether he had any treatment, it was learned that he did not use any medication or other treatment methods, but he had only used oral krill oil capsules 1500 mg/day. He said that after learning about the potential benefits of krill oil he decided to use krill oil and used it during 9 months regularly.

The image of the hyperpigmented area on his face before he started using the krill oil capsules is given in Figüre 1. The image of his face after using krill oil is given in Figure 2.

Figure 1

Figure 2

Discussion

Diets with high amount of lipids are related with negatif affects on cardiovasculary system. Krill as a source of Ω- 3 PUFA's can be preferred for its lower content of lipid to fish [3].

Some authors report that although bioavilability of krill sourced EPA and DHA is claimed to be better, it is not as high as claimed. The study on this issue by Ulven et al. showed that there is no significant difference between fish and krill oil. However Maki et al. achieved important results in favor of krill. Von Schacky also showed in his study that bioavailability of krill-derived EPA is superior to fish [7-9].

While fish contains only triglycerides, there are both phospholipids and triglycerides in the content of krill. A large proportion of EPA and DHA are attached to phospholipids in the krill and the rate of absorption of fatty acids into the circulation and the bioavailability of Ω-3 PUFAs are quite higher in this form [2].

The krill oil diet was shown to be beneficial for lowering cholesterol components and have positive affect on vasculary damage. Lipase plays an important role in triglyceride metabolism. Fish products that are in triglyceride form contain high amounts of EPA and DHA. Their absorption requires lipase activity [8,10].

Studies performed with mice with phospholipase A2 (pPLA2) deficiency showed that PL metabolism was not affected by using krill but that of triglycerides were affected. Krill looks superior than fish which contains triglycerides in this respect [11].

Sampalis et al. reported that krill oil is better for improving symptoms of premenstrual syndrome and dysmenorrhea than fish [12].

Antioxidants have protective affect for cells by neutralizing free radicals. Antioxidant capacity of krill oil is remarkable as a source of astaxsantin and vitamins such vitamin A and vitamin E. It is widely believed that astaxantin makes krill superior to fish with its more potent antioxidant capacity by improving brain inflammation and cognitive function, cardiovasculary disease, diabetes mellitus, and skin wrinkles and pigmentation [4,13]. Facial pigmentations are one of the most important cosmetic problems. Age effect, prolonged exposure to sun, cosmetic use, some drugs and diseases can lead occurance of hyperpigmentation. There are different forms of facial pigmentation such as melasma, poikiloderma and melanosis [14]. Since improving of hyperpigmentation disorders are known to be a difficult and long lasting process, there's an interest for new and effective treatment methods. A single-blind placebo-controlled study designed with the addition of 4 mg astaxanthin daily to the diet for six weeks showed remarkable results. Participant's skin flexibility, wrinkles, fine lines and moisture status were markedly improved [6,15].

Conclusion

Hyperpigmented blemished skin is a cosmetic problem that negatively affects human psychology. Treatment with oral krill oil seems to be an effective, safe, non invasive and easily applicable alternative treatment strategy for apparent hyperpigmented blemishes of the skin. Performing further studies on this subject may be beneficial.

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