Sclerodermoid Reaction due to Injection of Fish Oil

By Jesse I. Payton, BS, Adam Blechman, MD, Mary Eid, MD and Barrett J. Zlotoff, MD

There are numerous reports of adverse reactions from off-label substances that are used for soft tissue augmentation—paraffin, ivory balls, glass balls, vegetable oils, mineral oil, lanolin, beeswax, shellac, silk fabric, epoxy resin, rubber, ox cartilage, sponges, goat’s milk, Teflon, soybean, peanut oil, and glazer’s putty are among the materials that have been injected for augmentation purposes. Associated side effects of these agents include hypersensitivity reactions, panniculitis and granulomatous inflammation. Even FDA-approved soft tissue filler materials such as collagen and hyaluronic acid, which are used for facial augmentation, have been associated with allergic reactions, infection, tissue necrosis, and granulomatous foreign body reactions.

The benefits of fish oil have been well-reported in mainstream media and peer-reviewed articles. Several articles display its efficacy in reducing triglycerides and low-density lipoprotein in diabetics, decreasing acute liver injury as a component of total parenteral nutrition (TPN), prolonging remission in patients with Crohn’s disease, and modulating inflammatory cytokines. It is therefore not surprising that misconceptions have arisen around its potential uses. A Google search reveals bodybuilding and medical advice forums routinely discuss the utility of subcutaneous and intramuscular injection of commercial fish oil for cosmetic purposes. Other anecdotal sources advocate its topical use for breast and buttock enhancement.

CASE

A 33-year-old African American female with a history of insulin-dependent diabetes presented to the emergency room with pain in her bilateral buttocks and hips. She reported using her insulin syringes to inject 100 units of material from Spring Valley Fish Oil softgel capsules into these areas daily for the previous month. Associated symptoms included fever and chills, but she denied drainage from the sites. The patient was febrile with a temperature of 38.3°C and tachycardic with a pulse of 127. Her physical exam was notable for bilateral 10x8cm erythematous, tender and indurated plaques with a peau d’orange quality but no purulent discharge (Figure 1). Her labs were significant for a white blood cell count of 14.9 with neutrophilic predominance and her urinalysis was positive for ketones, protein, bilirubin, and blood. CT imaging showed inflammatory changes at the injection sites and possible cellulitis. The patient was admitted and treated with intravenous (IV) Cefazolin and IV Vancomycin. Dermatology was consulted and a skin biopsy was obtained for histologic examination and bacterial, fungal, and mycobacterial tissue cultures. Tissue cultures and blood cultures were negative. Her skin biopsy showed a sclerotic dermis with thick collagen bundles and a perivascular and periadnexal lymphohistiocytic infiltrate along with fat necrosis, consistent with trauma from her injection history (Figure 2). No organisms were observed with a Gomori Methenamine-Silver Nitrate Stain, Fite, and gram stain. The patient was discharged with a PICC line to finish a 10-day course of intravenous Vancomycin. At outpatient follow-up two weeks and two months later, she
complained of superficial skin desquamation, but remained afebrile and her lesions were noted to be less red, painful and indurated at each visit. She was advised to apply pure petrolatum jelly and continue observation.

This case demonstrates the dangers of off-label soft tissue augmentation techniques. One similar case is described in the literature, in which a 37-year-old veterinarian developed bilateral mastitis after serial injections of commercial fish oil for breast augmentation. Her hospital course was complicated by Staph chromogenes infection of the bilateral breasts. Biopsies showed fat necrosis and granulomatous inflammation. The patient did not respond to prolonged antibiotic treatment and recurrent debridement and she ultimately underwent bilateral mastectomy.9

The patient in our current case did meet Systemic Inflammatory Response Syndrome (SIRS) criteria upon presentation and was treated with IV antibiotics, but no causative organisms to support an infectious diagnosis were isolated on blood and tissue cultures.

These clinical findings are similar to those seen with Texier’s Disease, a reaction to subcutaneous vitamin K1 injection.8 Texier’s Disease can present with an acute eczematoid reaction or from secondary skin infection. Symptoms either from systemic effects of the cutaneous inflammatory reaction or from secondary skin infection.

CONCLUSION
Despite their health benefits, cutaneous injection of commercial fish oil products can result in severe inflammatory reactions. This case highlights a sclerodermoid reaction as the result of intradermal and subcutaneous injection of fish oil. This reaction was similar to Texier’s Disease, which occurs after cutaneous injection of vitamin K. Patients may present with constitutional symptoms either from systemic effects of the cutaneous inflammatory reaction or from secondary skin infection.

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