

Early lipogranuloma formation after foreign material injection to the face

Yüze yabancı madde enjeksiyonu sonrası erken lipogranüloma oluşumu

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Abstract

Aging is a physiological process that progresses both physically and mentally. In today's conditions, there are medical devices and cosmetic procedures that support the external appearance and make the person feel good socially in order to age well. Over the years, thanks to the advancing technology, different solutions have been developed to compensate the loss of facial volume due to aging. Although the use of dermal fillers increases with each passing year, their excessive costs, and the need for periodic repetition force people to seek different and unhealthy solutions. In this study, we present a 32-year-old female patient who was injected with egg white in both nasolabial folds and presented with widespread redness and tenderness on the face. Surgical excision was performed after systemic corticosteroid therapy. The patient's granulomas excised from the mouth were reported as lipogranuloma by the pathology department. The frequency of foreign substance injections for cosmetic purposes has increased in recent years. Early diagnosis and follow-up is critical in the treatment of these cases.

Keywords: Lipogranuloma, Foreign body reaction, Facial volume loss

Öz

Yaşlanma hem fiziksel hem de ruhsal olarak ilerleyen, fizyolojik bir süreçtir. Günümüz şartlarında güzel bir şekilde yaşlanmak için, dış görünümü destekleyen ve kişinin kendini sosyal olarak iyi hissetmesini sağlayan medikal cihazlar ve kozmetik prosedürler mevcuttur. Gelişen teknoloji sayesinde yıllar içinde, yaşlanma nedeni ile olan yüzdeki volüm kaybını kompanse etmek için farklı çözümler türemiştir. Dermal dolguların kullanım sıklığı her geçen yıl artsa da, yüksek maliyetleri ve belli aralıklarla tekrarlanma gereksinimleri insanları farklı ve sağlıksız çözümler aramaya itmektedir. Bu çalışmada her iki nazolabial katlantıya yumurta akı enjekte edilen, yüzde yaygın kızarıklık ve hassasiyet ile başvuran, 32 yaşında bir kadın hastayı sunduk. Hastaya sistemik kortikosteroid tedavisinin ardından cerrahi eksizyon yapıldı. Hastanın ağız içinden eksizye edilen granülomları patoloji sonucuna göre lipogranülom olarak belirlendi. Yüze kozmetik amaçlı yapılan yabancı madde enjeksiyonların sıklığı son yıllarda artış göstermektedir. Bu olguların tedavisinde erken tanı ve takip kritik önem taşımaktadır.

Anahtar kelimeler: Lipogranülom, Yabancı cisim reaksiyonu, Yüzde volüm kaybı

Introduction

Aging is a process that takes place both physically, spiritually, and physiologically. Facial aging is multifactorial, not just about one component. As people get older, their skin becomes drier, thinner, less elastic, and their resistance to external forces weakens. This leads to breakage of the skin, the percentage of fat compartments to change, decrease in facial volume and prominence in the facial lines [1,2]. Treatment methods for facial volume reduction are the applications in which the lost volume is replaced either by using the person's own fat tissue or with dermal fillers.

Dermal filler applications on the face have gained popularity in recent years, especially due to their ease of application, rapid effects, and lack of donor site morbidity. Today, the perception of beauty and the high financial burden of these treatment methods cause people with low socioeconomic status in developing countries to try non-professional treatment methods and non-sterile foreign substance injections [1,3,4]. In this study, a 32-year-old patient who was injected with egg whites to her facial lines and wrinkles due to volume loss is presented.

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Case presentation

A 32-year-old female patient without any additional disease was admitted to the clinic with the complaint of swelling, pain and palpable nodules in her both nasolabial sulci (Figure 1). It was learned that 10 days ago, her neighbor had injected egg whites into her both nasolabial sulci for cosmetic purposes. The patient stated that she visited the infectious diseases department due to the swelling, tenderness and redness that occurred 3 days after this application. When the patient visited our clinic, she had been prescribed 40 mg corticosteroid daily and oral antibiotics for 2 weeks. The patient, who was still on antibiotic and corticosteroids, was not considered for an intervention on the same day and was called for control again after the medication was finished. At the control examination 1 month after the injection, multiple granulomas were palpated in the bilateral nasolabial folds (Figure 2). No cervical lymphadenopathy was detected on physical examination. For the erythematous nodules, an incisional biopsy was performed by accessing through the oral mucosa under local anesthesia. Tissue culture was obtained. Blood tests revealed elevated white blood cell count ($1.2 \times 10^{10}/L$), neutrophilia (68.3.5%), and lymphocytosis 14.3%, with normal ESR and CRP.



Figure 1: 10th day after application



Figure 2: Nodule formation in the 1st month

In histopathological examination of tissue, subcutaneous adipose tissue was compatible with hyaline necrosis in septa, while oral mucosa pathogens were detected in wound culture (Figure 3). Because the patient was in the postpartum period, she was started on suitable antibiotherapy. The nodules were reported as lipogranuloma by the pathology department. Because the nodules responded well to steroid treatment, the treatment was continued for 2 weeks. Afterwards, treatment was ceased after the symptoms subsided. In addition, psychiatric support was provided to the patient who said that she had this procedure due to her postpartum depressive state (feeling old and ugly).

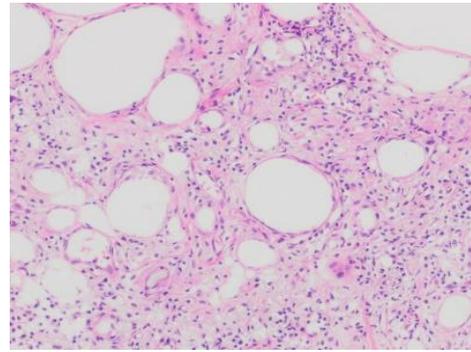


Figure 3: Microscopical slide of the biopsy (Stained with Hematoxylin and eosin)

Discussion

The use of dermal fillers is rapidly increasing every year. Numerous soft tissue fillers without enough experimental and clinical data is introduced each year. The increasing costs of developing a safe and effective dermal filler are driving people to cheap and unhealthy solutions for beauty. Unfortunately, the frequency of these unhealthy methods is increasing day by day. These inappropriate and non-sterile methods cause permanent effects on the person by creating granulomas, foreign tissue reaction and skin necrosis in the area where they are applied [5].

Granuloma is a chronic inflammatory reaction of various etiologies, and macrophages are the main cells that form granulomas [6]. Dermal filler-related foreign body granulomas are non-allergic reactions consisting of multi-core giant cells and occur 6-24 months after filling injections [6,7]. There are different opinions about granulomas associated with filling. Bentkover [8] stated that dermal filler particles that cannot be phagocytosed by macrophages may form granulomas. Lemperle et al. [4] explained that particle surface and impurity are the factors that associated with foreign body granulomas.

In this case, egg white was thought to be suitable for providing the facial tissue volume due to its gel form. Although hypersensitivity is regarded as the cause of lipogranuloma in some sources, the general belief is that foreign body granulomas do not cause an allergic reaction [9,10]. While granulomas generally occur as a chronic inflammatory reaction with various etiologies, this case was an early type lipogranuloma [11]. Traumatization of endogenous lipids in subcutaneous tissue injections can cause lipogranuloma formation as well [12].

There are different options in the treatment of foreign body granulomas such as intralesional injections, systemic therapy and surgical treatment. Intralesional corticosteroid therapy is usually one of the first options in limited cases due to its easy application. It is known that local corticosteroid injection has an effect on the activities of fibroblasts, macrophages, giant cells and collagen synthesis [13]. 30-60mg of oral prednisolone per day is effective for recurrent granulomas [4]. Surgical treatment is the only option in patients whose symptoms do not improve with local and systemic treatment [14]. In this case, since the foreign material was injected under medically unsuitable (non-sterile) conditions and widespread redness and tenderness occurred after the injection, the patient was prescribed oral prednisolone. Since the patient responded well to systemic therapy, the treatment continued until the granulomas were reduced in size after which they were surgically excised.

Conclusion

Injection of contaminated substances such as industrial silicone, mineral oil, petroleum jelly, vitamin E, paraffin, egg white into any region of the face or body may cause foreign body reaction, local abscess formation, and recurrent infections, thus reducing self-confidence. In fact, it can also cause serious life-threatening complications in some cases. As dermal filler applications are difficult to afford in developing countries, foreign material injections that can cause such effects are common. In this respect, rapid diagnosis and treatment with a detailed and correct approach is important. Since the lesions have the potential to persist and recur and it is not possible to clean foreign body reaction materials, long-term follow-up of the patients is critical in managing this process.

References

1. Kim MW, Park HS, Yoon HS, Cho S. Late-Onset Complication of Fillers: Paraffinoma of the Lower Eyelids Clinically Mimicking Xanthelasma. *Ann Dermatol*. 2016;28:753-6.
2. Whitney F, Louis M. Foreign Body Reaction to Facial Dermal Fillers: Case Report. *J Oral Maxillofac Surg*. 70:2012:2352-5.
3. Anderson JM, Rodriguez A, Chang DT. Foreign body reaction to biomaterials. *Semin Immunol*. 2008;20:86-100.
4. Lemperle G, Gauthier-Hazan N, Wolters M, et al. Foreign body granulomas after all injectable dermal fillers: part 1. Possible causes. *Plast Reconstr Surg*. 2009;123:1842-63.
5. Wang LL, Thomas WW, Friedman O. Granuloma formation secondary to silicone injection for soft-tissue augmentation in facial cosmetics: Mechanisms and literature review. *Ear Nose Throat J*. 2018;97(1-2):E46-E51. doi:10.1177/0145561318097001-211
6. Williams GT, Williams WJ. Granulomatous inflammation: a review. *J Clin Pathol*. 1983;36:723-33.
7. Lemperle G, Gauthier-Hazan N, Wolters M, et al. Foreign body granulomas after all injectable dermal fillers: part 1. Possible causes. *Plast Reconstr Surg*. 2009;123:1842-63.
8. Bentkover SH. The biology of facial fillers. *Facial Plast Surg*. 2009;25:73-85.
9. Park TH, Seo SW, Kim JK, et al. Clinical experience with polymethylmethacrylate microsphere filler complications. *Aesthetic Plast Surg*. 2012;36:421-6.
10. Tanna N, Zalkind D, Glade RS, Bielanowicz SA. Foreign body reaction to calcium hydroxylapatite vocal fold augmentation. *Arch Otolaryngol Head Neck Surg*. 2006;132:1379-82.
11. Graivier MH, Bass LS, Busso M, Jasin ME, Narins RS, Tzikas TL. Calcium hydroxylapatite (Radiesse) for correction of the mid- and lower face: consensus recommendations. *Plast Reconstr Surg*. 2007;120:55S-66S.
12. Yang JH, Lee SM, Won CH, et al. Foreign body granuloma caused by hyaluronic acid/dextranomer microsphere filler injection. *Int J Dermatol*. 2012;51:1517-8.
13. Conejo-Mir JS, Sanz Guirado S, Angel Munoz M. Adverse granulomatous reaction to Artecoll treated by intralesional 5-fluorouracil and triamcinolone injections. *Dermatol Surg*. 2006;32:1079-81.
14. Lee JM, Kim YJ. Foreign body granulomas after the use of dermal fillers: pathophysiology, clinical appearance, histologic features, and treatment. *Arch Plast Surg*. 2015;42(2):232-9. doi:10.5999/aps.2015.42.2.232.

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