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CASE REPORT

A case of cellulitis-like foreign body reaction after hyaluronic acid dermal filler injection

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ABSTRACT

A 58-year-old female presented with 3 weeks history of painful skin lesion on the right cheek. Diagnosis was cellulitis based on the clinical manifestation and laboratory test. However, skin lesion did not improve with antibiotics, and as a consequence, biopsy was performed. Based on histopathological findings and additional information of her previous history of intradermal filler injection, the lesion was diagnosed to be foreign body reaction. Previous reported cases of foreign body reaction induced by hyaluronic acid dermal filler typically manifested as nodular lesions, but cellulitis-like cutaneous manifestation has not been reported. Therefore, we report this interesting case of foreign body reaction after hyaluronic acid dermal filler injection.

Introduction

Foreign body reaction is the last step of inflammation and wound healing process following implantation of various materials into human tissue. It can be induced by dermal filler injection and can show a variety of clinical and histological features. Hyaluronic acid (HA) is used most frequently in the injection, and is regarded safe filler material as the incidence of granulomatous reaction complication only counts from 0.02% to 2.8%.[1] Causes of most adverse reactions to HA are not clearly known, and foreign body granuloma usually develops 6–24 months after injection is administered.[2] Foreign body granuloma caused by HA is known to usually manifest as a single lesion, especially on the site of injection, and multiple lesions have also been reported.[3,4] Feature of the granuloma is mostly erythematous nodules, but none have resembled a form of cellulitis. We authors report one case of rare foreign body reaction after HA dermal filler injection characterized by its cellulitis-like feature, with review of past literature.

Case report

A 58-year-old female presented with a painful skin lesion on her right cheek. The symptom started 3 weeks ago, and whilst she have visited local clinic and been administered antibiotics it only became worse without signs of recovery. She did not have a history of trauma, and her past medical history or family history turned up nothing of concern. From physical examination, localized well defined, erythematous indurated plaque with tenderness was found on the right cheek (Fig. 1A). Diagnosis was cellulitis based on the clinical manifestation and mildly elevated ESR and CRP levels in laboratory test. However, her symptom and skin lesion did not improve with antibiotics, and as a consequence, biopsy was performed on her right cheek. Histologic examination showed diffuse inflammatory cells infiltration, predominantly lymphocytes with some histiocytes. Multiple, clear vacuoles were remarkably observed forming “Swiss cheese” appearance, which would make the characteristic histologic feature of foreign body reaction (Fig. 2). Based on these findings, additional history taking was done and it was discovered she took intradermal filler injection (Restylane®) approximately 2 years ago on the face. Magnetic resonance

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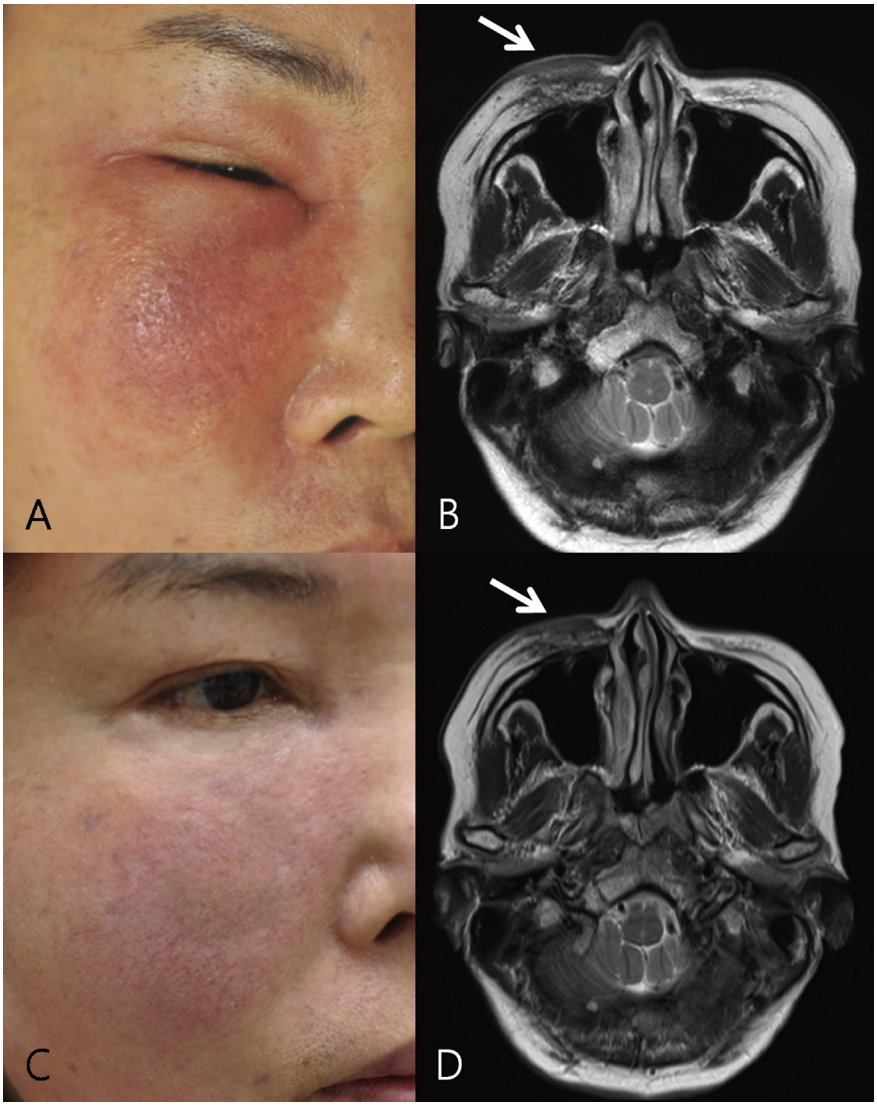

Fig. 1 (A) Erythematous indurated plaque on the right cheek with swelling of periorbital area. (B) Magnetic resonance image (axial view, T2WI) revealing swelling and high signal intensity lesion at skin and subcutaneous fatty layer of right cheek (arrow). (C) After 6 months treatment, improved skin lesion and swelling on the right cheek with mild telangiectasia. (D) Decrease in swelling and high signal intensity lesion at skin and subcutaneous fatty layer of right cheek on MRI (axial view, T2WI).

imaging was done for further evaluation on the depth of lesion and status of other injection sites, and the image showed high signal intensity implying foreign body reaction on not only right cheek, but also left cheek, glabella, and infratemporal fossa, with suspected invasion of subcutaneous layer (Fig. 1B). Final diagnosis was made to be a foreign body reaction after hyaluronic acid dermal filler injection, and she is showing improvement after being treated with systemic steroid, and intralesional steroid and hyaluronidase. During the period of treatment, the lesion was seen spreading to the temporal area. Therefore, we suspected superimposed infections and prescribed oral antibiotics (amoxicillin 1000 mg and clavulanic acid 250 mg per day) for several weeks. The primary treatment was intralesional steroid and hyaluronidase, which was administered 6 times, once every 4 weeks. Oral steroid therapy was initiated with methylprednisolone 24 mg/day and tapered to 8 mg/day over 4 weeks. Subsequently, methylprednisolone 4 mg/day was continued for 6 months. Clinical photographs and MRI images after 6 months of treatment have been attached (Fig. 1C and D).

Discussion

Collagen, main component of dermis, contributes to strengthening and supporting skin. As age increases physiologic activity of fibroblasts' collagen synthesis deteriorates, resulting in decreased tissue bulk and elasticity.[5] Lately to compensate for these cosmetic facial deformities, facial dermal filler injection has risen to its fame enough to be called commonplace. Ideal filler materials would be safe, easy to use, cost-effective, and adequately restore tissue contour. Although dermal fillers are generally thought to be safe, all foreign materials have potential ability to cause adverse reactions.[6] HA is composed of polysaccharides and has same structure in all species; therefore, the risks of an implant rejection or an immune response are low.[1] Despite HA derivatives being well tolerated, a

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