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Unexpected delayed orofacial symptoms induced by facial cosmetic filler: A report of 3 cases

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ABSTRACT

In addition to well-known side effects such as rash, redness, and bone resorption, unexpected facial complications may occasionally occur several years after certain medical procedures. This report presents rare cases of orofacial symptoms that developed as delayed responses to cosmetic filler injections. Three separate patients presented to the authors' institution with varying severities of orofacial symptoms. These symptoms, initially diagnosed clinically as inflammation or neoplasms of the parotid gland, were later identified through magnetic resonance imaging as diseases potentially associated with filler materials injected approximately 4-8 years earlier. The primary goal of this report was to inform specialists in the oral and maxillofacial field about the possibility of such complications, enabling them to manage patient symptoms effectively and develop appropriate treatment strategies. ***(Imaging Sci Dent 20250144)***

KEY WORDS: Esthetics, Dental; Radiography; Magnetic Resonance Imaging; Salivary Gland Diseases

With the increasing demand for aesthetic facial enhancement, cosmetic fillers have been widely used worldwide. Various filler materials have been developed, including fat, silicone, collagen, and hyaluronic acid (HA).[1,2] Some of these substances are naturally resorbed over time, whereas others persist permanently beneath the skin or appear as dystrophic calcifications due to inflammation.[1,3,4] Although most filler materials are generally safe, they can interact with body tissues and lead to complications associated with local symptoms. Previous studies have reported both immediate and delayed side effects of filler injections.[1,3,4] However, reports on orofacial side effects occurring several years after the procedure remain limited.

The most common sites for filler injections are in the midface, particularly the cheek and buccal spaces.[3,5] To reshape the lower face, the parotid-masseteric area and buccal space are typically targeted, and most procedures are performed bilaterally.[5,6] The normal buccal space is largely composed of fatty tissue and lacks major nerve trunks or large blood vessels that might cause severe complications. Nevertheless, understanding individual anatomical variation remains crucial. Additionally, the main parotid gland duct, known as the Stensen duct, passes through this region, and an accessory parotid gland is frequently present, occurring in up to 33.5% of the population.[7]

The main parotid duct measures approximately 6-7 cm in length and follows a small anteriorly curved C-shaped course as it passes around the buccal fat pad and pierces the buccinator muscle to open opposite the second upper molar tooth.[8,9] Given this anatomical route, obstruction of salivary flow may occur following filler injection.[10] When the injected material aggregates or fails to resorb, it can be mistaken for a salivary gland neoplasm. Reports of such complications are rare, possibly because the onset of symptoms often occurs long after the filler injection, making it difficult to recognize the association between filler use and salivary gland disease.

This report presents a series of cases illustrating orofacial symptoms that developed as delayed responses to cosmetic filler injections. The purpose of this report was to alert specialists in the maxillofacial field to these potential complications and to provide insights for effective symptom control and appropriate treatment planning.

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Case Report

This retrospective study was approved by the Institutional Review Board of Yonsei University Dental Hospital. The requirement for informed consent was waived because the study involved only a review of existing medical records without direct patient contact (IRB No. 2-2024-0060).

Case 1

A 58-year-old woman presented to the Department of Orofacial Pain and Oral Medicine at Yonsei University Dental Hospital with bilateral preauricular pain. Symptoms on the right side had begun 4 years earlier, while discomfort on the left side had developed 1 week before her visit. The pain intensified during mouth opening and chewing. She also complained of severe pain and swelling extending from her right ear to her cheek when consuming sour foods. The initial clinical diagnoses were sialadenitis with sialodochitis of the right parotid gland and bilateral temporomandibular joint (TMJ) disorder. To refine the diagnosis and establish a treatment plan, cone-beam computed tomography and magnetic resonance (MR) imaging of the TMJ were performed.

MR images revealed the presence of foreign bodies suspected to be cosmetic filler materials in both buccal spaces. Specifically, in the region of the right Stensen duct orifice, the signals corresponding to filler materials appeared densely packed (Fig. 1A). Stensen duct of the right parotid gland showed marked dilatation (Fig. 1B), and the gland parenchyma exhibited mildly increased signal intensity on T2-weighted and gadolinium (GD)-enhanced images (Figs. 1A and C). On the left side, T2-hyperintense signals were more diffusely distributed along the lateral aspect of the buccal space.

Further interviews with the patient revealed a history of facial filler injections approximately 7 years earlier. The final clinical diagnosis was filler-induced obstructive sialadenitis and sialodochitis of the right parotid gland. Ductal irrigation was performed, after which the patient's symptoms subsided.

Case 2

A 63-year-old female visited the Department of Oral and Maxillofacial Surgery at the authors' institution with the chief complaint of a lump inside her right cheek that had been present for 7-8 years. She reported no pain but recently experienced a sagging sensation. Clinical examination revealed a mobile, approximately 1.5 cm-sized mass with no tenderness on palpation. The tentative clinical diagnosis was lipoma, and MR imaging was performed for diagnostic clarification and surgical planning.

On T2-weighted images, a lobulated, well-defined lesion showing high T2 and low T1 signal intensity was identified in the right buccal space. The lesion appeared hypointense on gadolinium (GD)-enhanced images (Figs. 2A-C), and its signal intensity was significantly lower than that of the adjacent buccal fat tissue. In the anterior buccal space, near the nasolabial fold, additional T2-high signal materials were diffusely distributed within the subcutaneous fat layer. These surrounding foreign materials exhibited the same signal characteristics as the right buccal lesion on T1-weighted and GD-enhanced images (Figs. 2D-F). Although the lesion was located along the ductal pathway of the right parotid gland, the diffusion-weighted imaging (DWI) signals were relatively lower than those typically observed in retention pseudocysts associated with salivary disease (Fig. 2G).

If the lesion were a lipoma, it would have demonstrated

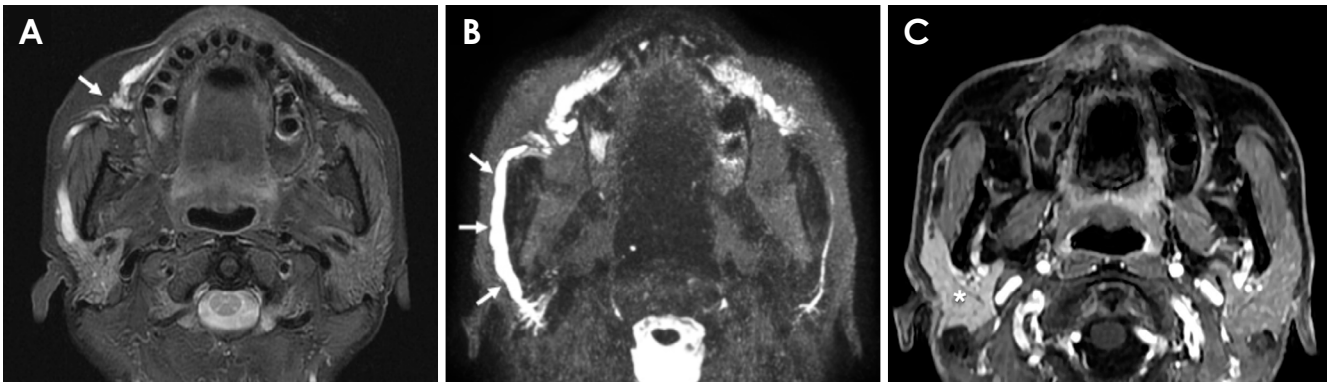

Fig. 1. Magnetic resonance (MR) images of case 1. A. A T2-weighted image shows high signals in the bilateral buccal spaces and orifice area of right parotid gland (arrow). B. MR sialography reveals dilatation of the right Stensen duct (arrow). C. A gadolinium-enhanced image shows slight signal enhancement on the right parotid gland (asterisk).

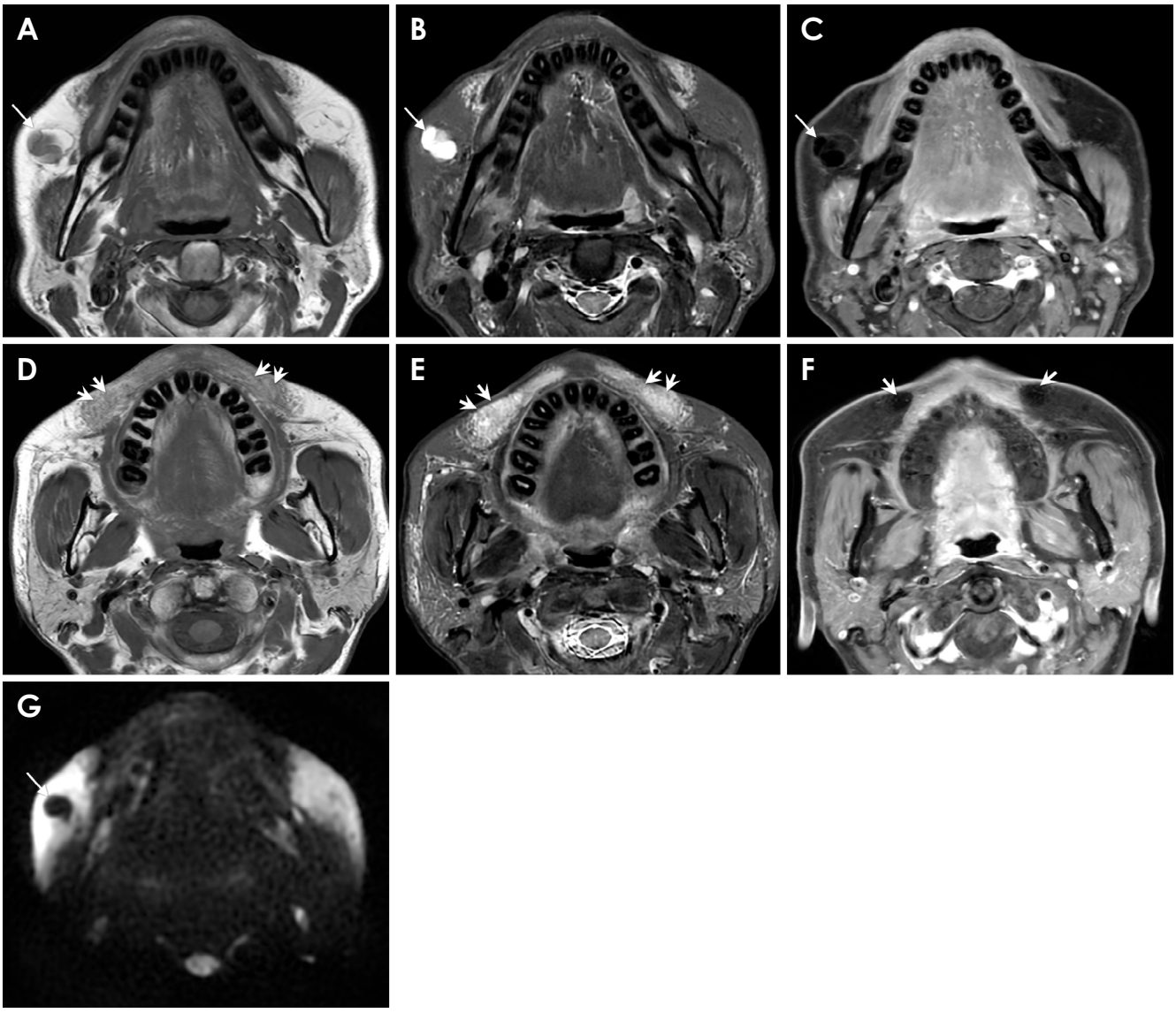

Fig. 2. Magnetic resonance images of case 2. A and B. The lobulated lesion in the right buccal space shows isointensity in a T1-weighted image (A) and hyperintensity in a T2-weighted image (B). C. The lesion shows a distinctive lower signal than that of the fat tissue in a gadolinium-enhanced T1-weighted image with fat suppression (arrow). D-F. Foreign bodies, dispersed overall the facial area, show the same signal intensity as the lesion, in a T1-weighted image (D), T2-weighted image (E) and gadolinium-enhanced T1-weight image with fat suppression (F) (arrowheads). G. Diffusion-weighted image reveals the lesion (arrow) with low signal.

a dark signal on fat-suppressed T2-weighted imaging. Ultimately, imaging findings indicated that the right buccal space lesion represented a foreign body associated with retained saliva, reflecting an interaction between filler material and surrounding tissue rather than a cystic lesion or lipoma. The lesion was manually expressed rather than surgically excised. Although biochemical analysis was not performed—one of the main limitations of this study—the record indicating a reduction in lesion size supported the diagnosis to some extent.

Case 3

A 51-year-old woman presented to the Department of Oral and Maxillofacial Surgery at the authors' institution with a mass in the left buccal mucosa. She had noticed it 3-4 months before presentation and reported neither pain nor change in size. Clinical examination revealed an approximately 1.5 cm-sized, soft, and mobile mass on the left buccal mucosa anterior to the parotid gland. The lesion was nontender to palpation. MR imaging was performed under the tentative clinical diagnosis of a salivary gland tumor.

MR imaging demonstrated homogeneous T2-high signal

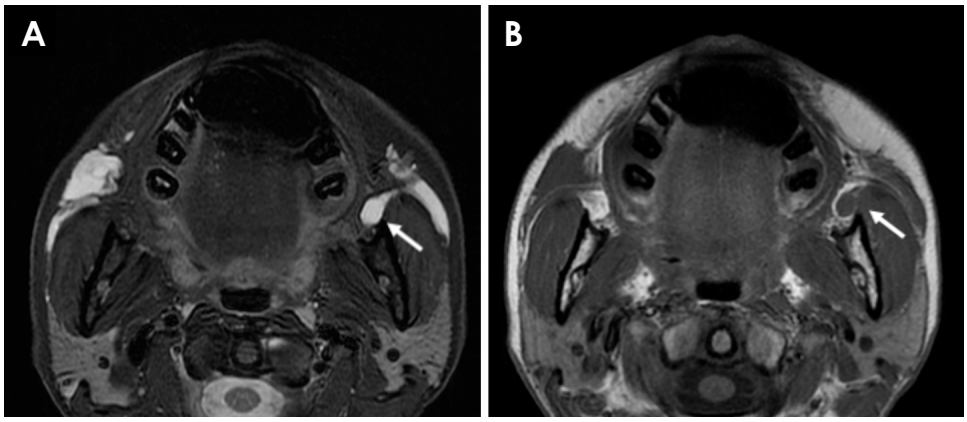

Fig. 3. Magnetic resonance images of case 3. A. A T2-weighted image shows materials with hyperintensity filling bilateral buccal spaces and especially extending into the pterygomandibular raphe on the left side (arrow). Haziness of fat planes, suggestive of mixed inflammation, is also observed. B. A T1-weighted image shows isointense materials within bilateral buccal spaces and the area of the left pterygomandibular raphe. The encapsulated lesion-mimicking mass in the clinical examination is bulging into the left buccal mucosa (arrow).

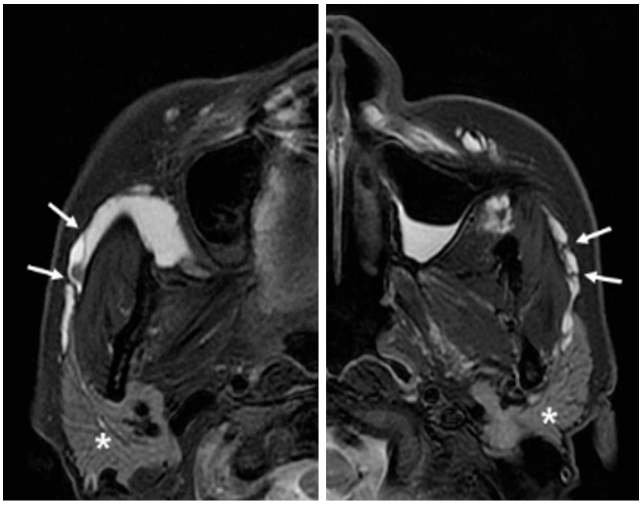

Fig. 4. A T2-weighted magnetic resonance (MR) image presents infiltration or adhesion of filler material involving the Stensen duct and anterior lobe of the right parotid gland. The parenchyma of both glands does not show significant abnormal signal (asterisk). The smudged low-T2 MR signal pattern may indicate filler migration, primary ductal stenosis caused by the filler, or secondary stenosis due to inflammation (arrow).

lesions occupying both buccal and retroantral spaces, extending into the pterygomandibular raphe and bulging into the left buccal mucosa at the site where the patient perceived a mass (Fig. 3). These foreign materials had infiltrated the anterior portions of both parotid glands and were densely packed along the Stensen duct or just lateral to it. However, there were no significant abnormalities in the parenchyma of either gland (Fig. 4). Further interviews revealed that the patient had undergone facial filler injections approximately 4-5 years earlier. It was suspected that filler material originally injected into both buccal spaces had migrated to areas near the left pterygomandibular raphe and the main ducts of both parotid glands. The final clinical diagnosis was a foreign body in the buccal space, for which surgical intervention was deemed unnecessary.

Discussion

Facial fillers have been used globally for cosmetic purposes and facial rejuvenation. Various materials have been developed as fillers, some of which are gradually absorbed, while others remain permanently beneath the skin. This report presented cases in which patients visiting a dental hospital misinterpreted their symptoms as indicators of salivary gland disease or benign tumors but were ultimately diagnosed with conditions related to residual filler materials. These diagnoses were established based on characteristic imaging findings and patient history, despite the difficulty of identifying the cause due to the long interval between symptom onset and the original filler injection.

Well-known side effects of cosmetic fillers include erythema, edema, nodules, foreign body reactions, and migration of filler materials, with timing and severity depending on the specific filler and injection procedure.[11-13] The cases described in this report involved patients who had received filler injections 4-8 years earlier and subsequently developed atypical symptoms that were difficult to be recognized as filler-related complications.

One rare but reported complication of filler injections is obstructive salivary gland disease.[3,6,10] Kim et al.[10] described a case of obstructive sialadenitis induced by facial filler injection, similar to the first and third cases in the pre-

sent study. In their report, as in the current cases, a homogeneous T2 high-signal material infiltrated the ductal area and anterior portion of both parotid glands. Because symptom onset occurred long after filler injection, establishing a direct relationship between the filler and salivary gland pathology was challenging. Similarly, Schelke et al.[6] reported filler-related side effects involving the parotid gland region and emphasized the utility of high-frequency ultrasonography for detecting filler location and volume, as well as for evaluating filler-related complications.[14,15] In case 1 of the current study, the patient's discomfort improved following ductal irrigation without filler removal. This finding suggests that glandular and ductal inflammation may have occurred secondarily, caused by the presence of foreign material and adjacent inflammatory reactions.

Consistent with Kim et al.,[10] the present study confirmed that cosmetic fillers were not initially suspected on clinical examination but were identified during MR imaging, with subsequent history-taking confirming prior filler injections. The wide variety of filler materials complicates radiologic diagnosis because of their diverse imaging characteristics. For example, resorbable fillers such as HA, collagen, and autologous fat typically disappear within a short duration, whereas slowly resorbable fillers (e.g., poly-L-lactic acid, calcium hydroxyapatite, and dextran) and permanent fillers (e.g., liquid silicone and polymethyl methacrylate) exhibit heterogeneous features on MR imaging.[1,2,4,11] The most commonly used fillers—HA, collagen, and polyacrylamide hydrogel (PAAG)—display similar MR characteristics due to their high water content.[16] HA, for instance, appears strongly hyperintense on T2-weighted and hypointense on T1-weighted images and typically demonstrates well-defined serpiginous margins. Likewise, collagen and PAAG fillers show hyperintense T2 and hypointense T1 signals, along with very low signal intensity on GD-enhanced imaging.[11] These imaging characteristics helped identify the lesions observed in the present cases as likely filler-related. The low DWI signals further supported the possibility that the lesions were caused by retained filler materials.

Depending on the properties of the filler and the injector's technique, materials may be inadvertently placed deep within the orofacial region. In case 3 of this study, filler may have been injected into the retroantral space or along the main ductal pathway of the parotid gland. According to Lee et al.,[3] the buccal space is the most common site for filler injection; however, fillers were also found in the retroantral and parotid spaces in approximately 23% of cases. In some patients, discomfort in the intraoral buccal mucosa may arise from filler migration over time or from deep injection into these spaces, as observed in the present study. Such clinical findings may mimic tumors or cysts, but the possibility of foreign material should also be considered. Therefore, proper imaging evaluation should precede surgical intervention. Oral and maxillofacial specialists, including surgeons and radiologists, must remain aware that cosmetic filler materials may appear in these regions and should interpret imaging studies carefully across all sequences.[12]

This report describes long-term complications associated with facial fillers to provide useful insights for oral and maxillofacial specialists. However, several limitations should be acknowledged. None of the present cases included histopathological confirmation of filler materials, as diagnoses were based solely on clinical and radiologic findings. Moreover, the small number of cases limited the ability to represent the full spectrum of filler-related complications.

In conclusion, filler-related orofacial complications may manifest years after injection. Radiologists should always consider a history of filler treatment when interpreting post-inflammatory or obstructive features. When delayed filler complications are suspected, MR imaging can be particularly valuable for differential diagnosis and localization of foreign materials in the orofacial region. Because the exact composition of filler substances and tissue sampling are often unavailable in cosmetic cases, diagnosis—as in this report—relies primarily on radiological evaluation. Therefore, integrating imaging features with clinical findings is essential. These cases highlight the importance for both clinicians and radiologists of considering filler-related lesions during patient evaluation, history-taking, diagnosis, and treatment planning.

Conflicts of Interest: None

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