



# Obstructive Sialadenitis associated with Injectable Facial Fillers

Sora Kim<sup>id</sup> | Youree Hong<sup>id</sup> | Bokeum Kim<sup>id</sup> | YounJung Park<sup>id</sup> | Hyung-Joon Ahn<sup>id</sup> |  
Seong-Taek Kim<sup>id</sup> | Jong-Hoon Choi<sup>id</sup> | Jeong-Seung Kwon<sup>id</sup>

Department of Orofacial Pain and Oral Medicine, Dental Hospital of Yonsei University College of Dentistry, Seoul, Korea

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## Correspondence to:

Jeong-Seung Kwon  
Department of Orofacial Pain and Oral  
Medicine, Dental Hospital of Yonsei  
University College of Dentistry, 50-1 Yonsei-  
ro, Seodaemun-gu, Seoul 03722, Korea  
Tel: +82-2-2228-3111  
Fax: +82-2-393-5673  
E-mail: jskwon@yuhs.ac  
<https://orcid.org/0000-0003-4584-7355>

Obstructive sialadenitis, one of the diseases that most frequently causes swelling and pain in the salivary glands, is mainly caused by structural obstructions. Sialolithiasis is the most frequent cause of the disease, and other causes include calculus formation, duct strictures, foreign bodies, and anatomical variations. Although there is a possibility that facial fillers directly block the salivary ducts, no cases of obstructive sialadenitis associated with them have been reported yet. We report the case of a 34-year-old female patient who complained of recurrent swelling and pain in the left buccal mucosa. She had undergone facial filler injection procedures on her facial area for cosmetic purposes several years before. Based on the findings of magnetic resonance imaging (MRI) and MR sialography, she was diagnosed with obstructive sialadenitis due to facial fillers. Through this case, we should remember to obtain a thorough history including filler treatments in the case of parotid gland swelling. We also suggest proper utilization of advanced imaging such as MRI in evaluating the location of facial fillers.

**keywords:** Dermal fillers; Magnetic resonance imaging; Salivary ducts; Sialadenitis

## INTRODUCTION

Obstructive sialadenitis is one of the frequent non-neoplastic causes of salivary gland swelling. Sialadenitis is characterized by recurrent swelling and pain caused by pressure, and sialolithiasis, which accounts for 66% of cases, is the most common cause.

It can be induced by calculi, fibromucinous plugs, duct stenosis, foreign bodies, anatomic variations, or malformations of the ductal system [1]. However, in this case, symptoms secondary to direct duct obstruction due to facial fillers have rarely been reported in practice.

In this paper, we present the case of a 34-year-old female patient who was diagnosed with obstructive sialadenitis caused by facial fillers.

This study protocol was approved by the Institutional Review Board of Yonsei University Dental Hospital (IRB no.

2-2022-0037), and the need for obtaining written informed consent was waived by the board.

## CASE REPORT

A 34-year-old woman presented with recurrent swelling in the left buccal mucosa for several years. She also complained of continuous foreign body sensations and felt pain if she touched her buccal mucosa when the swelling sensation was severe. She was already taking non-steroidal anti-inflammatory drugs and antibiotics prescribed at the local otorhinolaryngology clinic, and her symptoms were relieved but not completely resolved.

On clinical examination, there was no swelling and tenderness on palpation of both submandibular and parotid glands areas, the buccal mucosa, and the floor of the mouth. There were no remarkable ulcers or redness in the

oral cavity; however, salivary secretion from the orifice of the Stensen's duct was not observed when both parotid glands were massaged.

Flow rates of unstimulated and stimulated (by gum base) whole saliva were mildly decreased (0.243 mL/min, 0.816 mL/min respectively). Her tentative diagnosis was sialadenitis in the left parotid salivary gland. Laboratory tests, including a complete blood count, routine chemistry, rheumatoid factor, C-reactive protein, antinuclear antibody, anti-Ro/SSA, and anti-La/SSB were performed to rule out systemic diseases such as Sjögren syndrome. Face magnetic resonance imaging (MRI) and MR sialography were performed to evaluate the salivary glands and the salivary ductal system.

MRI revealed a "sausage string" appearance in both parotid gland ducts, and the main duct was enlarged and the diameter of the duct was narrowed (Fig. 1). Atrophy of both parotid glands was also observed. A large amount of T2-high signal, presumed to be foreign bodies, was also

observed around the orifices of both parotid gland ducts (Fig. 2).

MR sialography revealed dilatation and stricture of Stensen's ducts, consistent with sialodochitis (Fig. 3).

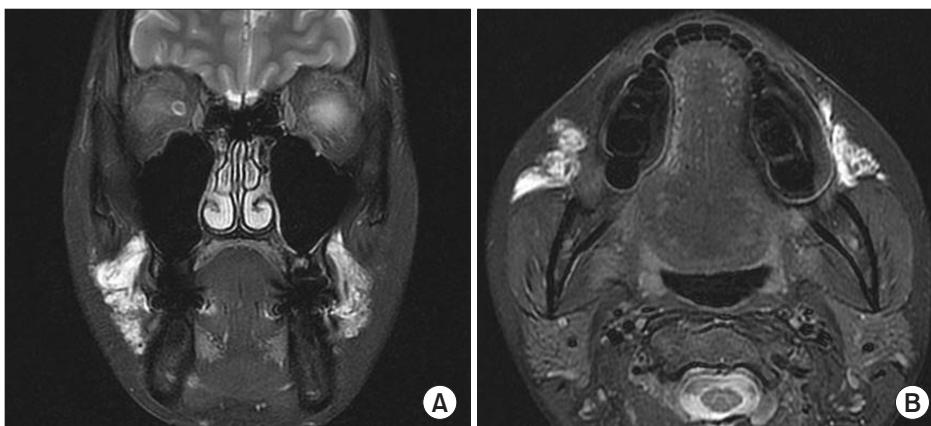
Careful anamnesis revealed that she had undergone facial filler injection by a dermatologist two years earlier because she had hollow cheeks. Therefore, she was diagnosed with obstructive sialoadenitis and sialodochitis in both parotid glands due to a dermal filler, and she consulted an otorhinolaryngologist for further treatment. She did not get any treatment because her symptoms were mild, and decided to return to the clinic if the symptoms were aggravated.

## DISCUSSION

Facial fillers have been used not only for cosmetic purposes but also for facial rejuvenation, and in the correction of disease-related volumetric fat loss, especially ones that are secondary to human immunodeficiency virus, Romberg disease, and post-traumatic facial disfigurement



**Fig. 1.** Facial magnetic resonance imaging was performed one week after the first visit. It revealed the dilatation of both main ducts of salivary glands and the obstruction of the intraductal system (white arrows). (A) Coronal view. (B) Axial view.



**Fig. 2.** During facial magnetic resonance imaging, a large amount of the T2-high signal, presumed to be a foreign body, is observed around the orifice of both parotid gland ducts. (A) Coronal view. (B) Axial view.



**Fig. 3.** Magnetic resonance sialography reveals inflammation of the salivary glands and ducts.

[2]. Soft tissue augmentation using various injectable fillers has gained popularity due to its non-invasive nature, instant cosmetic outcome, and limited recovery time [3]. It is widely used because it is relatively non-invasive and inexpensive compared to cosmetic surgery; recently, these are being performed not only by plastic surgeons and dermatologists but also by dentists. Overall, this injection procedure is known to be safe; however, various side effects can appear depending on the time of residence of facial fillers. Typically, the things that may occur immediately after the procedure are inflammation-related reactions, including erythema and edema. The side effects such as infections and type I hypersensitivity are typical reactions that occur within a few days [4]. As side effects that could occur weeks or years later, nodules, foreign body reactions, or the migration of implanted materials have been reported.

Obstructive salivary diseases such as sialolithiasis and inflammatory disorders of the salivary ductal system can induce repetitive swelling of the salivary gland [5]. Sialolithiasis is one of the most common diseases found in the salivary gland [6], and even benign or malignant neoplasm could uncommonly obstruct the salivary ductal system [7]. Anatomical deformities and foreign bodies can lead to structural obstruction or disruption of the salivary ductal system [8]. Facial fillers can also cause direct ductal obstruction, leading to obstructive sialadenitis if it is injected carelessly. However, obstructive sialadenitis caused by

dermal fillers has rarely been reported.

Imaging diagnostic tools like ultrasound, CT, or MRI enable clinicians to be aware of the features of facial fillers and their complications. MRI can visualize static liquids in ductal structures with the use of heavily T2-weighted sequences [9]. MR sialography is a noninvasive technique for diagnosing diseases of the salivary ductal system and evaluating observed changes in ductal anatomical morphologies [10].

When a patient visits the dental clinic with a presenting complaint of symptoms related to sialadenitis, it is common to ask questions related to ductal stenosis and saliva stones. As in this case, comprehensive anamnesis including facial fillers is needed for a precise diagnosis if obstructive sialadenitis is suspected because of salivary gland swelling. In addition, it will be helpful to establish an accurate diagnosis and decide the treatment direction by checking in with the site, timing, and type of filler injected. It can be helpful for the differential diagnosis to check whether the duct is stenotic or whether there is a foreign substance at the tip of the probe through direct probing of the salivary duct. It is necessary to suggest proper utilization of advanced imaging, such as MRI, CT, and ultrasonography to evaluate the association with facial fillers.

## CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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