An out-of-season cold. Filler-induced vascular occlusion of the columellar artery causing necrosis of the cartilaginous anterior nasal septum: case report and a literature review

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Abstract

Hyaluronic acid fillers are widely employed for aesthetic procedures but can lead to vascular complications, including rare instances of arterial occlusion. We report a case of columellar artery occlusion following a nasal filler injection in a 30-year-old woman. The patient initially presented with subtle symptoms, including persistent rhinorrhoea and an unusual sensation of cold air. Rhinoscopy revealed full-thickness necrosis of the anterior nasal septum, likely due to compression or embolization of the septal branch of the superior labial artery; prompt treatment with hyaluronidase, aspirin, and topical antibiotics resulted in complete resolution. A literature review identified only one similar case, emphasizing this complication's rarity and potential underreporting. This case underscores the importance of early recognition and intervention in filler-induced vascular events.

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Introduction

In their recent publication, George Kroumpouzos *et al*.[1] provided a comprehensive update on the complications caused by filler procedures in the lips and perioral area. These injections have been associated with various arterial accidents and an incidence of vision loss, mainly when such procedures are performed at the level of the central facial massif.

Among the various cases of vascular involvement reported in the literature, we have found what we believe to be a rare occurrence of columellar artery occlusion with a noteworthy discrepancy between the expected symptoms and the actual described vascular effects.

The necrosis of the columellar artery following hyaluronic acid injections showed some peculiarities: its frequency is unknown, and recognition can be troublesome due to the presentation of subtle symptoms. We want to exemplify these characteristics in this case, which, fortunately, optimally resolved itself, underscoring its unique nature.

Case Report

A 30-year-old Italian female was consulted for an aesthetic treatment for the nose, which presented a slightly convex curvature (c+) and a sub-projection (p-) in the lateral plane.[2] After carrying out a full-face cosmetic approach,[3] we proposed a rhinofiller treatment with 1.2 mL of high-visco-elastic crosslinked hyaluronic acid added with lidocaine. To enhance lateral nasal projection, 0.8 mL of product was injected at the root of the nasal bones and 0.4 mL on the periosteal plane at the columellar-nose angle. All maneuvers were executed with a 27-gauge needle already in dotation without using a cannula. The filler was administered in bolus, and a gentle aspiration was executed before every injection.

Subsequently, the patient was kept in observation for one hour and sent home without reported signs or symptoms.

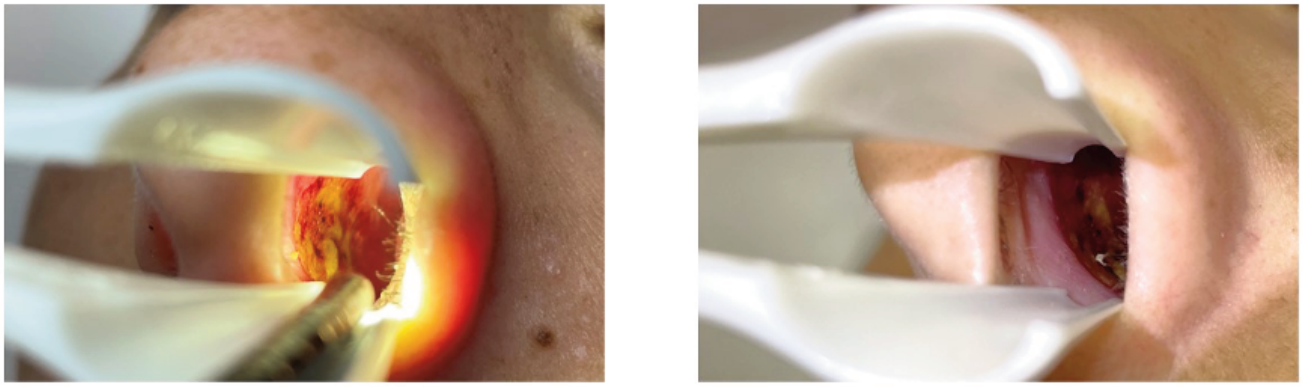

Figure 1. A) Rhinoscopy of the left nasal mucosal septum, where we can note the ulceration of the anterior mucosal area; **B**) rhinoscopy of the left nasal mucosal septum four weeks after treatments of hyaluronidase and aspirin, showing a complete resolution of the wound.

At the two-week follow-up, the patient initially reported excellent satisfaction with the aesthetic profile. However, two to three days after the treatment, she began experiencing a constant runny nose and a peculiar perception of air as cold. These symptoms, which were initially subtle, led us to suspect a complication caused by the injections, prompting a rhinoscopy examination that revealed a full-thickness necrosis of the anterior wall of the nasal septum (Figure 1A).

The use of a bolus injection of 1.200 U.I. of hyaluronidase, 1/2 vial at the injection site at the level of the columellar area and the other half around the lesion at the level of the septal mucosa, the prescription of 100 mg of aspirin daily, and the application of local mupirocin resolved the ulcer and reported symptoms in two weeks (Figure 1B).

The potential trigger that could have induced this condition was damage to the Kiesselbach area, and the most plausible explication was compression or embolization of the septal branch of the superior labial artery after injection at the nasolabial angle.

The columnar artery of the nose, also known as the septal branch of the superior labial artery, is a minor anastomotic vessel of Kiesselbach's plexus (Little's area) and supplies blood to a small part of the nasal cavity and the anterior nasal septum. Kiesselbach plexus also regulates blood flow to the mucosa, which helps maintain the appropriate hydration level and oxygenation to the nasal cavity. Additionally, this plexus is a common location for *epistaxis* (nosebleeds) due to the fragility of the vessels in this area. Its main tributary arteries are the anterior ethmoidal artery, a branch of the internal carotid artery, and the greater palatine artery and sphenopalatine artery, which are branches of the maxillary artery. These two account for most of the blood supply of Little's area, but in some anatomical variants, the blood inflow of the columnar artery can be so crucial that its closure may not be sufficiently overcome by other vessels in the anterior portion of the cartilaginous nasal septum, causing its necrosis.[3,4] Since nasal mucosal is fundamental to heat the air circulating from the exterior to the upper airways, it explains the "cold air" symptoms the patient expressed.

Similar cases in the literature

We performed an extensive literature review looking for similar cases reported using the search strings on MEDLINE and Scopus databases: columellar AND (Filler OR Occlusion OR Ischemia, Nasal AND (Septal OR Septum) AND (Wound OR Ulcer OR Ischemia). To date, only one case described by Souza *et al.*[5] seemed to have a similar course, while another reported by Kim KS *et al.*[6] had much more intense symptoms and included a turbinate vascular involvement. However, as already stated by other authors,[1] it is recognized that filler adverse effects are underdiagnosed and underreported, and it is reasonable to assume that there could be many similar cases. This case is a stark reminder of the need for vigilance and prompt action in the face of filler complications. It underscores that these complications should always be considered, even weeks after the procedures, even in the absence of overt symptoms and visible dermatological changes.

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