

# Nasal Alar Necrosis Following Hyaluronic Acid Injection into Nasolabial Folds: A Case Report

Ali Manafi<sup>1</sup>, Behrooz Barikbin<sup>2</sup>, Amir Manafi<sup>3\*</sup>, Zahra Sadat Hamed<sup>3</sup>, Shokoofeh Ahmadi Moghadam<sup>4</sup>

1. Department of Plastic Surgery, Iran University of Medical Sciences, Tehran, Iran
2. Shohada Tajrish Hospital, Laser Application in Medical Sciences Research Center, Tehran, Iran
3. Department of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran;
4. School of Medicine, Islamic Azad University, Tehran Branch, Tehran, Iran

## ABSTRACT

Injection of synthetic fillers for soft tissue augmentation is increasing over the last decade. One of the most common materials used is hyaluronic acid (HA) that is safe and temporary filler for soft tissue augmentation. We present a case of 54-year-old female who experienced vascular occlusion and nasal alar necrosis following HA injection to the nasolabial folds. She suffered from pain, necrosis, infection, and alar loss that finally required a reconstructive surgery for cosmetic appearance of the nose. The case highlights the importance of proper injection technique by an anesthesiologist, as well as the need for immediate recognition and treatment of vascular occlusion.

## KEYWORDS

Hyaluronic acid; Soft tissue; Injection; Alar necrosis

Please cite this paper as:

Manafi A, Barikbin B, Manafi A, Hamed ZS, Ahmadi Moghadam S. Nasal Alar Necrosis Following Hyaluronic Acid Injection into Nasolabial Folds: A Case Report. *World J Plast Surg* 2015;4(1):74-78.

## INTRODUCTION

Soft tissue augmentation with temporary dermal fillers is one of the most common cosmetic procedures.<sup>1</sup> There are a lot of materials that have been used as a dermal fillers for this purpose previously,<sup>2</sup> but hyaluronic acid (HA) fillers have become the material of choice for temporary augmentation. HA fillers have some advantages, such as longer lasting and less immunogenic reactions, and finally can be hydrolysed by hyaluronidase enzyme.<sup>3</sup>

Some complications associated with its use have been reported, and most of them are rare and benign.<sup>4</sup> Other complications were reported as follows: infection, nodules, hypersensitivity reactions, and arterial compromise.<sup>5</sup> The most severe and early-occurring complication is tissue necrosis due to embolization of specific vessel and obstruction of the vessel by the filler material which can cause ischemia and tissue necrosis.<sup>1</sup> There are few reports of nasal alar area necrosis after HA injection in nasolabial folds. Here, we describe a case of alar necrosis after HA injection.

## CASE REPORT

A 54-years-old Iranian woman underwent injection of HA fillers into nasolabial folds for wrinkle correction of this region by an

### \*Correspondence Author:

Amir Manafi, MD;  
Department of Medicine,  
Shahid Beheshti University of Medical  
Sciences, Tehran, Iran.

Tel: +98-9127389651

Fax: +98-21-88797882

E-mail: amanafi@gmail.com

Received: August 1, 2014

Accepted: October 1, 2014

anaesthesiologist (Figure 1). A few minutes after injection of HA, she noticed pain and reddish discoloration in the right side of the nose.

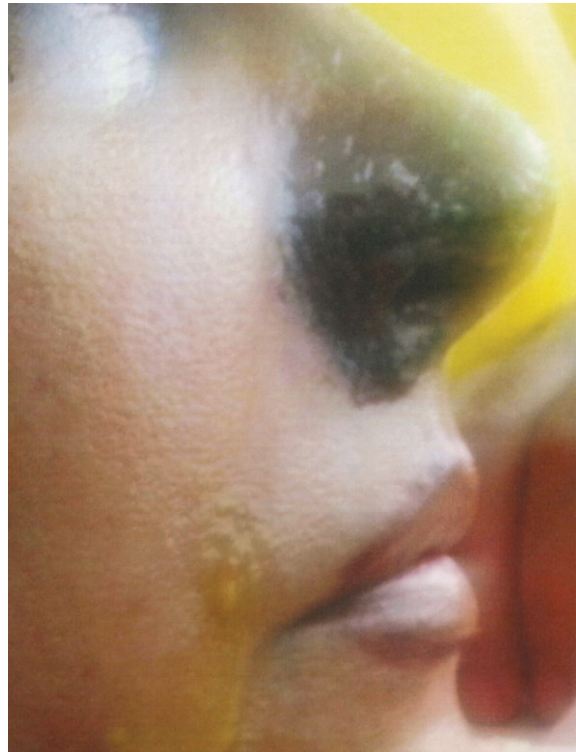


**Fig. 1:** An amatory photo before HA injection shows normal nasal alar structures.

By the third day from the onset, blisters appeared at the right nasal ala (Figure 2). Then a black area in the right nasal ala appeared which represent skin necrosis in this area, the necrotic areas well demarcated (Figure 3). With passing time and wound care the grossly necrosed part



**Fig. 2:** Right nasal alar partial necrosis, 3 weeks after HA injection to right nasolabial fold.



**Fig. 3:** Forty days after HA injection, the necrotic areas demarcated in alar region.

sloughed and the bed was tidy and inflamed (Figure 4). She had developed localized and then widespread mid facial swelling and infection, resulted into hospitalization of her due to a cavernous sinus thrombosis. After 5 days, she was discharged with improvement of her signs and symptoms.



**Fig. 4:** Two months after injury, the gross necrosis tissue sloughed and its bed inflamed and was fibrinous.

When our plastic surgeon visited the patient the right nasal alar area has had skin tissue shortage and it was inflamed. She was advised to tolerate it up to improvement of the inflammation and wound maturation (Figure 5). After one year and subsidence of skin inflammation and irritation, a composite graft taken from the helical root of her right auricle was grafted to the residual skin defect (Figure 6).



**Fig. 5:** Three months after injury, when she was visited by plastic surgeon, the bed of right nasal alar region and perinasal area were inflamed and fragile.

reduction in skin perfusion.<sup>9</sup> Delayed injection necrosis through vascular compression from hyaluronic acid has been described previously.<sup>10</sup> Minimizing this risk of aspiration prior to injection is recommended. Also it has been suggested that use of small amounts of filler and a suitable injection technique may reduce the risk of the complications.<sup>3</sup> Early diagnosis of vascular compromise and even vascular necrosis after filler injection may improve the outcome of wound healing.<sup>11</sup>

The two danger zones which are vulnerable to tissue necrosis are the glabella and nasal ala.<sup>2,12</sup> Similar to the glabellar region, the nasal ala is a particular region strictly dependent on a single arterial branch. Although accidental intra-arterial injection of dermal fillers has been a rare condition, the potential risk of vascular embolization should be considered in case of injection into subcutis of the glabellar region,

the nasal ala and nasolabial folds.<sup>3</sup> Therefore, compression of the facial artery from nasolabial folds injection or compression of the angular artery, at the alar rim could elucidate nasal tip or alar necrosis.<sup>13</sup>

Manafi et al. (2012) reported successful use of platelet-rich plasma on cartilage grafts in rabbits as an animal model.<sup>14</sup> In 2013, Manafi et al. denoted good results for application of auricular composite graft in rhinoplasty armamentarium.<sup>15</sup> In Rabbit, a comparison was undertaken for graft resorption between three techniques of diced cartilage using surgical blade, electrical grinder and grater showing no statistically difference between groups and the use of both techniques in reconstructive and in aesthetic cases was recommended.<sup>16</sup>

In this case, despite the avoidance of direct filler injection into nasal ala, the right alar skin and cartilage became necrotic. In our case report, an anesthesiologist performed the injection procedure and the patient visited our dermatologist one month later due to the infection, necrosis and cosmetic complications. In the examination of the right nasal alar region, a permanent disfiguring asymmetry of the affected tissue was noticed while any initial management with hyaluronidase could not be performed. Wound care was continued and plastic surgical consultation was undertaken 6 months after injection. At her visit, the risks and benefits of all methods of reconstructions were explained to her, and she was recommended to wait for wound maturation prior to reconstruction. After one year, reconstruction surgery was undertaken.

In summary, we report a case of right nasal alar necrosis due to HA injection into nasolabial folds that resulted into scar and asymmetric figure of the nose. She was successfully managed with composite graft of the auricular area.

## CONFLICT OF INTEREST

The authors declare no conflict of interest.

## REFERENCES

- 1 Grunebaum LD, Allemann IB, Dayan S, Mandy S, Baumann L. The risk of alar necrosis associated with dermal filler injection. *Dermatol Surg* 2009;**35**:1635-40.
- 2 Inoue K, Sato K, Matsumoto D, Gonda K, Yoshimura K. Arterial embolization and



**Fig. 6:** A (Left column): One year after injury and before reconstruction, B: (Right column) Three weeks after the reconstruction with composite graft from the right auricular helical root which showed excellent take.

- skin necrosis of the nasal ala following injection of dermal fillers. *Plast Reconstr Surg* 2008;**121**:127e-8e.
- 3 Park TH, Seo SW, Kim JK, Chang CH. Clinical experience with hyaluronic acid-filler complications. *J Plast Reconstr Aesthet Surg* 2011;**64**:892-6.
  - 4 Honart JF, Duron JB, Mazouz DS, Rausky J, Revol M. A case of nasal tip necrosis after hyaluronic acid injection. *Ann Chir Plast Esthet* 2013;**58**:676-9.
  - 5 McGuire LK, Hale EK, Godwin LS. Post-filler vascular occlusion: a cautionary tale and emphasis for early intervention. *J Drugs Dermatol* 2013;**12**:1181-3.
  - 6 Sung HM, Suh IS, Lee HB, Tak KS, Moon KM, Jung MS. Case reports of adipose-derived stem cell therapy for nasal skin necrosis after filler injection. *Arch Plast Surg* 2012;**39**:51-4.
  - 7 Kwon SG, Hong JW, Roh TS, Kim YS, Rah DK, Kim SS. Ischemic oculomotor nerve palsy and skin necrosis caused by vascular embolization after hyaluronic Acid filler injection: a case report. *Ann Plast Surg* 2013;**71**:333-4.
  - 8 Schanz S, Schippert W, Ulmer A, Rassner G, Fierlbeck G. Arterial embolization caused by injection of hyaluronic acid (Restylane®). *Br J Dermatol* 2002;**146**:928-9.
  - 9 Cohen, J. L. Understanding, avoiding, and managing dermal filler complications. *Dermatol Surg* 2008;**34**:S92-3.
  - 10 Hirsh RJ, Brody HJ, Carruthers JD. Hyaluronidase in the office: A necessity for every dermasurgeon that injects hyaluronic acid. *J Cosmet Laser Ther* 2007;**9**:182-5.
  - 11 Kassir R, Kolluru A, Kassir M. Extensive necrosis after injection of hyaluronic acid filler: case report and review of the literature. *J Cosmet Dermatol* 2011;**10**:224-31.
  - 12 Glaich AS, Cohen JL, Goldberg LH. Injection necrosis of the glabella: protocol for prevention and treatment after use of dermal fillers. *Dermatol Surg* 2006;**32**:276-81.
  - 13 Rohrich RJ, Gunter JP, Friedman RM, Gruber RP. Nasal tip blood supply: an anatomic study validating the safety of the transcolumellar incision in rhinoplasty. *Plast Reconstr Surg* 1995;**95**:795-801.
  - 14 Manafi A, Moradi M, Manafi A, Manafi F. Effects of platelet-rich plasma on cartilage grafts in rabbits as an animal model. *World J Plas Surg* 2012;**1**:91-8.
  - 15 Manafi A, Babaki AES, Mehrabani G, Shahlaee A, Manafi A. Can we add auricular composite graft to our rhinoplasty armamentarium? *World J Plas Surg* 2013;**2**:33-40.
  - 16 Manafi, A, Sabet M, Emami A, Vasei M, Mosavi J, Manafi A, Hamed Z, Manafi F, Mehrabani G, Manafi N. A comparison in graft resorption between three techniques of diced cartilage using surgical blade, electrical grinder and grater in rabbit. *World J Plas Surg* 2014;**3**:52-63.