

## The Use of Face Lift Approach for Removal of Permanent Facial Fillers

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### ABSTRACT

**Background:** Over the years facial enhancement and rejuvenation with permanent filler injection have been introduced. Unfortunately, many patients experienced late undesirable complications. Such patients present with abnormal skin texture and facial deformities. This may be due to accumulated fillers or granulomatous reaction to the fillers. Removal of these fillers may be requested by some patients who developed side effects or complications following the injection. Removal of permanent facial fillers is a difficult task as it may need surgical removal with its hazards.

**Objective:** Is to review the different patients requiring removal of permanent facial fillers and to demonstrate the author's experience in utilizing the face lift approach for removal of these fillers.

**Patients and Methods:** Ninety-three patients with permanent facial fillers were operated upon. Some of them already had some complications like infection, granuloma, etc. While some were seeking removal for fear of developing such complications later on. In all patients the classic face lift approach was used.

**Results:** Fifteen patients had acute facial infection with abscess formation and were treated successfully without any side effects with complete removal of their fillers. The remaining 78 patients had their fillers removed with variable degrees. Most of the patients had prolonged downtime. Sixty-five patients had contour deficits. Ten patients had some complications. The encountered complications were facial nerve paresis in six patients, however, four of them recovered completely within a few months after surgery and the other two persisted. Another three patients had parotid duct injury but subsided without any sequel. The last one had persistent swelling of the lower eye lids.

**Conclusion:** Removal of permanent facial filler is a very difficult task and has many hazards. A special informed consent is designated to include all these hazards should be signed by the patient. The use of face lift approach is a useful technique for removal of permanent facial fillers especially the infected ones. However, the technique is not free from complications. These complications are not related to the technique itself but they are due to the nature of the presenting pathology.

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### INTRODUCTION

Soft tissue augmentation is a popular cosmetic procedure using injectable fillers. These fillers can be classified according to the longevity into temporary, semi-permanent and permanent. Nonreversible and non-biodegradable fillers with very long duration such as silicone oil, polyacrylamide hydrogel and polymethylmethacrylate (PMMA) microspheres suspended in non-cross-linked collagen have been developed for facial augmentation [1]. In the past liquid paraffin was also used also for facial augmentation [2]. Such fillers remain in the tissue for a long time and can cause inflammatory reactions at any time [3-5]. Inflammatory complications from such permanent fillers are called granulomas, may be due to presence of an ill-defined immune reaction [6]. Some authors believed that these adverse reactions are caused by a bacterial low-grade infection surrounding the foreign material. The biocompatible nature of non-absorbable hydrogel polymers acts as a nidus for bacterial infection, biofilm formation and potential secondary soft tissue infection [7].

Many techniques for removal of permanent facial fillers as suction, aspiration, squeezing, intralesional laser and local injection of dissolving materials and steroids have been tried, but they are not effective especially in patients with large granulomas and different types of fillers [7]. Surgical removal will be the only available modality left for this problem, many approaches for surgical

removal were described ranging from just stab incision [8] to intraoral or extraoral excision [9-11].

The aim of this study is to evaluate the use of face lift approach for removal of permanent facial fillers.

### PATIENTS AND METHODS

Ninety-three patients with permanent facial fillers were recruited in the study from September 2017 until September 2021 from the outpatient clinic at Aesthetic Center in one of the Gulf Countries. Written consent was obtained from all of our patients.

All the patients had their fillers injected at least 7 years prior to their presentation. Fifteen of these patients presented with acute infection of one side of the face that mandate immediate drainage. The rest of the patients (78 patients) presented electively with variable complains. Full detailed history was taken to know the timing of filler injection, the number of injections, the nature of the injected filler, the occurrence of any complications, any previous medications or trials for removal and the rational for removal. The patients were also asked for their interest in doing simultaneous lift like brow, temporal, face and neck lift.

Local facial examination was done at rest and on facial animation to detect any irregularities, facial asymmetry, color and texture of the facial skin, any scars and facial nerve status. Intra-oral examination should be done to assess the depth of the injection and the caudal extension of the filler.

Magnetic resonance image (MRI) with and without contrast was requested for all patients except the infected ones. When MRI was not feasible, facial sonography was done.

An informed consent was signed by all patients. Later on, in the study the consent was modified due to occurrence of other undesirable effects and complications. Preoperative photos were taken for all patients.

#### *Operative technique:*

All patients were done under General Anesthesia and hypotensive technique. The incision varied according to the patient's request. For infected fillers the pre-auricular approach was only used. If associated brow, temporal or neck lift will be done the incision extended cephalically or behind the ear. The skin of the face was undermined in the subdermal plane. The injected filler was iden-

tified as multiple nodules adherent to the under surface of the facial skin flap. It also formed a layer of granuloma amalgamated with the deeper facial structures namely the SMAS, buccal pad of fat, parotid duct and branches of the facial nerve (Video 1). For complete removal of the filler the undersurface of the flap should be sharply curetted and the granulomatous tissue has to be excised as deep as possible with sparing of the parotid duct and the branches of the facial nerve. The dissection is done with aid of magnification and nerve stimulator.



## Video 1 the use of facelift approach fo

Video (1): Intraoperative view of injected filler.

In patients with sufficient remnants of SMAS, plication or excision is done to lift the deep plane. The excess facial skin was tailored and excised, suction drain was left and the skin was closed. Facelift garments with comfortable dressings were used immediately after surgery and for the first two months after surgery. All the excised specimens were sent for histopathological examination. The patients were followed-up for at least 6 months and postoperative photos were taken for all of them. Postoperative MRI or sonography was done to patients who were in doubt about quantity of filler removal (Fig. 1).

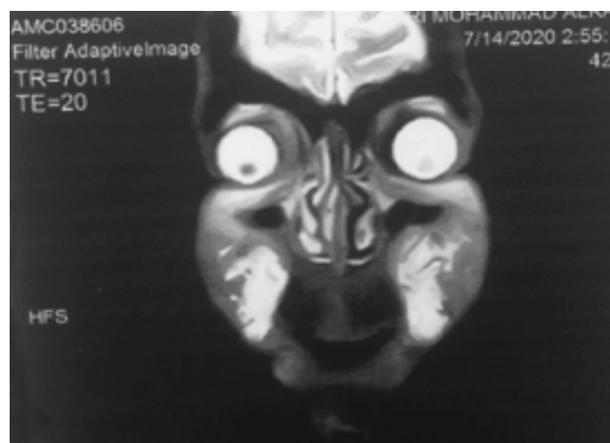


Fig. (1): Pre-operative MRI showing the injected facial filler.

The patients were evaluated individually according to four parameters: The extent of filler removal, the occurrence of undesirable effects, incidence of minor or major complications and the need for secondary procedures.

**RESULTS**

Ninety-three female patients were included in the study. Their age ranged from 26 years to 61 years old. They had their filler injections with an average of 10 years prior to their presentation. One third of the patients had more than one injection. The nature of the injected filler was not known in most of the patients. More than 80% of patients had their injection at beauty salon by nonmedical personal. The injected filler remained quiescent for a variable time up to 10 years after injection. Fifty percent of patients (46 patients) had repeated infection of their fillers and were treated by systemic antibiotics and corticosteroids. Fifty five percent of patients (51 patients) had repeated trials for removal of their fillers but in vain. According to the presentation and the rational for removal, the patients were classified into five groups (Table

1). The first group included fifteen patients presented by acute facial abscess following trial of removal by aspiration or after doing a dental procedure. The second group included 35 patients who had facial irregularities or asymmetry or aging due to repeated attacks of infection and previous trials for removal (Fig. 2).

The third group included 18 patients who had phobia from occurrence of any complications. The fourth group included 17 patients who wanted to do further facial aesthetic procedures but they were warned against it. The fifth group included 8 patients who needed dental procedures but they were rejected by their dentists.

Table (1): Patient's classification according to rational for filler removal.

First group (15 patients)	Acute facial infection and abscess
Second group (35 patients)	Aesthetic dissatisfaction
Third group (18 patients)	Phobia from complications
Fourth group (17 patients)	Patients seeking further aesthetic procedures
Fifth group (8 patients)	Patients requiring some dental procedures



Fig. (2-A): Patient with facial asymmetry following facial injection with failed trial of removal.

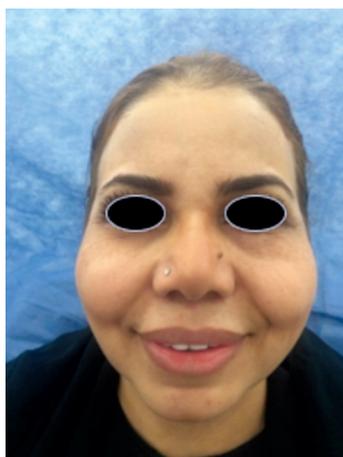


Fig. (2-B): Patient with aesthetic dissatisfaction due to over injected permanent facial fillers.



Fig. (2-C): Patient with aesthetic dissatisfaction due to sagging of permanent facial fillers.

The fifteen patients with acute facial infection were treated very successfully. After doing the face lift incision and approaching the infected fillers, it was easily squeezed and completely removed. (Video 2) and (Fig. 3).

The patient recovered completely within 7-10 days. There were no postoperative complications. The pre auricular scar even was not visible (Figure).



**Video 2 the use of facelift approach fo**

Video (2): Showing squeezing of the infected filler through the facelift incision.



Fig. (3-A): Patient with right side facial abscess on the top of permanent filler injection.



Fig. (3-B): Three weeks after incision and drainage of the filler using the face lift approach.

In the remaining 78 patients, the injected fillers were seen to be paraffin oil. This was evident by the presence of multiple cystic pearls with transparent wall and full of oily material (Fig. 4).



Fig. (4): Showing the multiple cystic pearls full of paraffin oil.

There was also heavy infiltration of the facial tissues with granulomas which is amalgamated with SMAS and even penetrating deep to it in the majority of cases. In about 9 patients there were cysts of variable size and thickened walls and they were excised (Video 3).



3.m p4

Video (3): Excision of the cyst and its lining.

The dissection of the filler material was very tedious and it required dissection of the twigs of

the facial nerve in most of the patients (Videos 4,5).



### 4.MOV

Video (4): Showing dissection of the branches of the facial nerve to remove the filler.

The fillers were removed with variable extent giving satisfactory results (Figs. 5,6).

Following filler removal there was severe post-operative facial edema and ecchymosis. Eventually the facial edema subsided after a long time. There were many undesirable effects after this surgery, the most common is the prolonged down time that may extend up to three months. Also, the occurrence of multiple contour deficits in 65 patients that required correction later on (Fig. 7).

Complications occurred in 10 out of the 93 patients (10.7%). In six of them there was paresis of one or more branches of the facial nerve. The



### 5.mp4

Video (5): Showing dissection of the branches of the facial nerve to remove the filler.

most commonly affected was the zygomatic branch and occasionally the temporal one. Physiotherapy was done to all of them.

Four of these patients recovered completely within 3-4 months and the other two persisted. Three patients had parotid duct injury with salivary secretion accumulation (Fig. 8). They were managed conservatively by giving them anti cholinergic medications and draining the accumulated saliva.

One patient had unexplained persistent edema of the lower eyelid (Fig. 9).

In all patients the facial flaps survived completely with aesthetically accepted scars.



Fig. (5-A): Preoperative front, right and left oblique views.



Fig. (5-B): Postoperative (7 months) front, right and left oblique views following simultaneous filler removal & face lift.



Fig. (6-A): Preoperative front and left lateral views.



Fig. (6-B): Postoperative (2 years) front and left lateral views following filler removal.

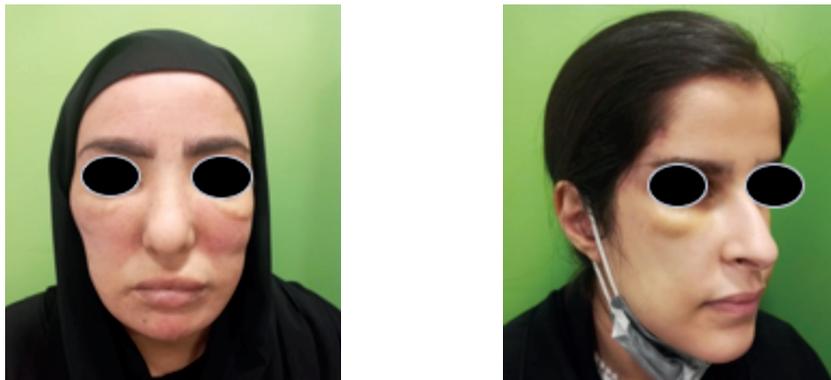


Fig. (7): Contour deficits after removal of permanent facial filler.



Fig. (8): Parotid duct injury with salivary secretion accumulation.



Fig. (9): Persistent postoperative lower eye lid edema.

## DISCUSSION

Many permanent filler materials have been used for facial augmentation and rejuvenation since long time [1]. Most of these fillers proved to have deleterious effects due to foreign body granulomatous reaction and their use were obsolete. Unfortunately, there was reinterest in the use of some of these fillers by nonmedical personal in some Arabian countries. This material was the Paraffin oil, which was already used by Von Reichenbach in 1830 [12]. This material is well known to be the worst injectable filler [13]. The paraffin oil is known to be refractory to all kinds of lysosomal enzymes and eventually, it forms a chronic inflammatory granuloma [14]. In this study we had the chance to manage ninety-three patients who had this injection a long time before.

Very few of the injected permanent fillers can be easily removed. Different modalities were tried for removal of these fillers. Polyacrylamide gel (Bio-alcamide) can be easily removed as it gets encapsulated by a collagenous capsule. This can be done by using wide bore cannula and squeezing [15]. Recently, Laser assisted treatment for facial filler removal was reported [16]. They used Intralase 1064-nm Neodymium YAG, while DeSantis et al., [17] used the 808-nm diode Laser, but in both reports the injected filler was Polymethylmethacrylate which was not the case in our study. Treatment of paraffinoma is still problematic due to diffuse infiltration into normal adjacent structures [18]. Surgical excision was considered to be the only method of removal as recommended by many authors (19,20). In this study 55% of the patients attempted failed trials of non-surgical filler removal. So, surgical excision was the modality of choice. Many surgical approaches for removal were described, doing stab wound incision in patients who had cystic distribution was reported [8]. We have adopted the technique of face lift approach a long time before for removal of these fillers because it gives a wide approach and it has a hidden scar. It also allows simultaneous face lift and brow, temporal and neck lift if the patient requested this. We also extended the use of this approach for drainage of infected facial fillers to avoid any facial scar. A more recent reports about the use of this approach were published [9,11]. We do not agree with removal of filler through intraoral excision as reported by some authors [10] as it has many hazards and usually does not succeed. We only use it as a complementary approach for excision of residual localized nodule after near total excision by the classic face lift approach.

In the managed patients there were many rationales for removal of the filler. Patients with facial infection and abscess formation were the easiest group as the infected material was readily squeezed through the face lift incision. These patients were considered lucky as they had complete filler removal with no side effects at all. We stress upon the fact that infected fillers should be drained immediately. The injudicious use of antibiotics and corticosteroids complicated the situation and due to chronic abscess formation, which is very difficult to manage. In the other groups of patients presented with established aesthetic deformity, the same technique was used but with some undesirable sequel. These were not due to the technique itself but rather to the nature of the existing pathology. The prolonged facial edema and downtime can be attributed to lymphatic obstruction by the filler migration and chronic inflammatory reaction [9]. The resulting contour deficits were mainly due to excision of variable amount of the filler material without replacement by any alternative. It may be symmetrical or asymmetrical depending on the amount of the original filler, the magnitude of granuloma formation and the previous trial of steroid injection or surgical removal. We did not advice immediate compensation by fat grafting as recommended by [21] as the local tissues were not ideal for this. Correction of contour deficits is usually performed at least six months after the initial surgery for filler removal. It is difficult due to presence of scar tissue, chronic inflammation and steroid induced lipoatrophy. Large bolus grafting should be avoided as it is more liable to fat necrosis and reabsorption [22]. The number of treatment sessions were increased in patients who underwent permanent filler removal compared with patients who simply want facial rejuvenation. It requires 6 months or up to several years for a final outcome of the result and the patients have to be informed about this [23].

Other complications that may occur with the traditional face lift surgery as parotid duct or facial nerve branches injury are also liable to occur but with higher incidence. There were some factors associated with this such as long duration since injection, large volume of filler and occurrence of repeated infections and fibrosis. All these factors lead to formation of granuloma that by time sag down or migrate opposite the angle of the mouth and hence the zygomatic branch is the most commonly injured branch. This is the most serious complication of surgery. Despite all these, the facelift approach remains the milestone for removal of permanent facial fillers.

### Conclusion:

Different modalities for removal of permanent facial fillers usually did not succeed. Surgical removal may be the only successful method for removal. The best surgical technique is the face lift approach. We used this technique in management of 93 patients with permanent facial filler (paraffin oil). The patients had variable presentations, those who presented with infection and facial abscess were the best managed ones concerning the adequacy of removal and the postoperative outcome. For this reason we are against the injudicious use of antibiotics and corticosteroids. We also stress upon the significance of early wide draining of this infection. As for patients who presented electively with aesthetic dissatisfaction, they were also managed but with less optimal results. They had many unwanted side effects and complications. These include prolonged facial edema, ecchymosis and downtime, multiple contour deficits, parotid duct and facial nerve branches injury superadded to the traditional side effects of the classic face lift. All these should be explained to the patients and documented in the informed consent.

Our recommendation is to avoid the use of any permanent fillers. For patients with such fillers, early removal is highly recommended before the stage of granuloma formation. Once infection occurs, it should be treated radically by surgical drainage. The face lift approach is the best surgical modality for removal of facial fillers whether infected or not. However, it is not an easy procedure and is not without complications due to the presence of the permanent filler.

### REFERENCES

- 1- Wilson Y.L. and Ellis D.A.: Permanent soft tissue fillers, *Facial Plastic Surgery*, Vol. 27, No. 6: 540-546, 2011.
- 2- Vazquez-Martinez O.T., Ocampo-Candiani J., Mendez-Olvera N. and Sanchez Negron E.A.: Paraffinomas of the facial area: Treatment with systemic and intralesional steroids. *J. Drugs Dermatol.*, 5: 186-9, 2006.
- 3- Carruthers A. and Carruthers J.D.: Polymethylmethacrylate microsphere/collagen as a tissue augmenting agent; personal experience 5 years. *Dermatol. Surg.*, 31: 1561-1563, 2005.
- 4- Fischer J., Metzler G. and Schaller M.: Cosmetic permanent fillers for soft tissue augmentation; a new contraindication for interferon therapies, *Arch Dermatol.*, 143: 507-510, 2007.
- 5- Kadouch J.A., Nolthenius C.J.T., Kadouch D.J., et al.: Complications after facial injection with permanent fillers; important limitations and consideration of MRI evaluation. *Aesthet. Sur. J.*, 34: 913-923, 2014.
- 6- Christensen L., Breiting V., Janssen M., Vuust J. and Hogdall E.: Adverse reactions to injectable soft tissue permanent fillers. *Aesthetic Plast. Surg.*, 29: 34-48, 2005.
- 7- Lemperle G., Gautnier-Hazan N., Wolters M., et al.: Foreign body granulomas after all injectable dermal fillers: Part I, possible causes. *Plast. Reconstr. Surg.*, 123: 1842-1863, 2009.
- 8- Cassuto D., Pignatti M., Pacchioni L., Boscaini G., Spaggian A. and De Santis G.: Management of complications caused by permanent fillers in the face: A treatment Algorithm, *Plast. Reconstr. Surg.*, Aug. 138 (2): 215e-227e, 2016.
- 9- El-Nahas M. and Ghareeb F.: Complicated facial filler management by face lift, *Menoufia Medical Journal*, Vol. 33 (4): 1347-1361, 2020.
- 10- Ghareeb F., Hassan M., El-Nahas M. and Salem M.: Complicated facial fillers: Management algorithm, *Plast. Reconstr. Surg. Glob. Open*, 10 (7): e4445, 2022.
- 11- Alsalawi A., Zeina A. and Zahra T.: Facelift Surgery after Permanent Filler: Outcome after Removal of permanent Filler under Local anesthesia, *Plast. Reconstr. Surg. Glob. Open*, 10: e4459, 2022.
- 12- Goldwyn R.M.: The paraffin story. *Plast. Reconstr. Surg.*, 65: 517-24, 1980.
- 13- Glicenstein J.: The first " fillers" , vaseline and paraffin: From miracle di. *Ann. Chir. Plast Esthet.*, 52: 157-61, 2007.
- 14- Heo J.W. and Kim B.K.: Paraffinoma induced bilateral preauricular cheek skin defects, *Arch. Craniofac. Surg.*, Vol. 19 No. 3: 227-230, 2018.
- 15- Ramirez P.A., Miccidi M.A., Panzarini E., Dini L. and Protopapa C.: Invitro and invivo biocompatibility and evaluation of polyacrylamide hydrogel for soft tissue augmentation, *J Biomed Mater Res- Part B Appl Biomater*, 72 (2): 230-8, 2005.
- 16- Goldman A. and Wollina U.: Intralesional Neodymium YAG Laser to treat complications of Polymethylmethacrylate, *Open Access Macedonian Journal of Medical Science*, Sep. 25; 6 (9): 1636-1641, 2018.
- 17- De Santis G., Pinelli M., Benanti E., Baccarani A. and Starnoni M.: Lipofilling after Laser-Assisted Treatment for facial filler complication: Volumetric and Regenerative effect, *Plast. Reconstr. Surg.*, Mar. 1: 147 (3): 585-591, 2021.
- 18- Feldmann R., Harms M., Chavaz P., Salmon D. and Saurat J.H.: Orbital and palpebral paraffinoma. *J. Am. Acad. Dermatol.*, 26 (5 Pt 2): 833-5, 1992.
- 19- Wong K.T., Lee P.S., Chan Y.L. and Chow L.T.: Paraffinoma in anterior abdominal wall simulating liposarcoma, *Br. J. Radiol.*, 76: 264-7, 2003.
- 20- Erguvan-Dogan B. and Yang W.T.: Direct injection of paraffin into the breast; mammographic, sonographic and MRI features of early complications, *AJR Am. J.*, March 2006.
- 21- Hua Z. and Wei P.: Comment: Lipofilling after Laser-Assisted Treatment for facial filler complication: Volumetric and Regenerative effect, *Plast. Reconstr. Surg.*, December 1: 148 (6): 1054e, 2021.
- 22- Cohen S.R., Hewett S., Ross L., et al.: Progressive improvement in midfacial volume 18 to 24 months after simultaneous fat grafting and face lift: An insight to fat graft remodeling, *Aesthet. Surg. J.*, 40: 235-242, 2020.
- 23- Starnoni M. and De Santis G.: Reply: Lipofilling after Laser-Assisted Treatment for facial filler complication: Volumetric and Regenerative effect, *Plast. Reconstr. Surg.*, December 1: 148 (6): 1054e, 2021.