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LATE ONSET GRANULOMATOUS INFLAMMATION POST PERIORBITAL FILLER INJECTION- CASE REPORT

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ABSTRACT
In this article we report a 24-year-old female patient with late onset orbital granulomatous reaction 4 months after a peri-orbital HA filler injection, for which she underwent both medical "anti-microbial & anti-inflammatory" and surgical treatment. In this case report we insist on the fact that Providers should be aware to this rare and devastating side effect of HA fillers and show the proper skills in avoiding, detecting and treating this complication.

KEYWORDS: In this article we report a 24-year-old female patient with late onset orbital granulomatous reaction 4 months after a peri-orbital HA filler injection, for which she underwent both medical "anti-microbial & anti-inflammatory" and surgical treatment.

INTRODUCTION

Hyaluronic acid (HA) is a naturally occurring substance founds in eyes and joints; its nature makes it the best substance to lubricate and attract water in the space it is injected in, which helps to give the shape and fullness to those hollow areas, like peri-orbital space, for that it has gained its popularity. HA filler represents the second most popular non-surgical cosmetic substance after botulinum toxin.[1] It is generally safe to use, However, side effects due to injections can range from mild reaction such as redness, itching and bruising which ACCOUNTS FOR MORE THAN 90% to a more devastating ones like: tissue necrosis, vision loss and cerebrovascular accidents.[2]

In this article we present a case of a delayed onset of inflammation post HA filler injection, and it is worth to mention here that the percentage of this side effect was about 0.7% before 1999 and dropped to 0.2% or less with the improvement of manufacturing purification of HA.[3]

CASE REPORT

A 24-year-old female patient presented to our oculoplastic department suffering from bilateral periorbital swelling and erythema 4 months after periorbital HA filler injection. The patient reported having a worsening swelling after using house-hold cleansing agent exposure that was spilled on the floor and some of it splashed on her face since then cheeks and orbital swelling ensues and got worsened with time "Figure-1".

She went back to her doctor "she is not sure if he is a certified dermatologist or a GP", but unfortunately the clinic was closed and she lost the contact with her physician. After that she headed to our department, we started by measuring the vital signs and CBC which were all within the normal.

Then we did imaging "orbital & face MRI, Figure-2" which showed bilateral subcutaneous extensive periorbital preseptal edema extending to the cheeks and superficial to the maxilla with post contrast T-1 enhancement, no loculated fluid collection to suggest abscess formation, no intraorbital extension noticed.

She was started on intravenous steroids "methylprednisolone" of 1g daily for 3 days and IV antibiotics starting with ceftriaxone 1gm /day as empirical treatment which has improved her symptoms then we discharged her on oral steroids. Unfortunately, the patient stopped the steroid herself which led to the relapse of her symptoms. Subsequently, clarithromycin and ciprofloxacin were started alongside steroids
Steroids dose:1mg/kg
Ciprofloxacin :500 mg *2 for 2 weeks
Clarithromycin :500 mg *2 for 2 weeks

Tissue biopsy was done showing foreign body-type giant cell reaction and chronic inflammation with fat necrosis.

With dermatological consultation …hyaluronidase was injected in the periorbital area with a dose of 150 unit /ml giving about 0.1 ml in each quadrant. Since the area was fibrosed in some places we tried to give collagenase as well with a dose of 50 iu/ml and giving 0.1 ml also in each quadrant. We tried collagenase and hyaluronidase weekly for almost 2 months.

After almost 1 year of follow up the patient looked better on treatment but inflammation didn't resolve completely and by consulting our oculoplastic surgeon senior, he offered debulking as the mass was obscuring her sight, but the surgery didn't seem to improve the situation. The patient went to immunology doctor on her own who started her on azathioprine 50 mg then he shifted her to methotrexate 2.5 mg and here mild improvement was noticed.

DISCUSSION

Injection of dermal fillers is the second most commonly performed procedures in cosmetic practice. HA fillers constituted about 75% of all injectable fillers because its compatibility with human body and its reversibility by using intralesional hyaluronidase enzyme.[4]

There are many indications of periorbital fillers, the main indication is cosmetic to add volume around the eye, other indications include: treatment of upper and lower lid retraction to help close the eye better, expansion of anophthalmic socket, injection in tear trough area to improve or eliminate dark circles or a tired appearance.[5], [6] It's important to mention that the use of dermal fillers in the periorbital area is off-labeled, although they have been used for several years with low complications rate.[6]

HA filler complications range from mild non-serious ones as over/under volume, swelling, bruising to a more serious forms such as inflammation, infection, vascular occlusion, tissue necrosis and blindness.

An unusual form of complications we encountered here in our case is a delayed inflammation post injection AND THE EXACT MECHANISM OF DELAYED INFLAMMATORY REACTION TO dermal fillers is not well understood .While often thought to represent a type 4 hypersensitivity reaction mediated by T cells , a recent panel of experts have removed the term hypersensitivity in describing delayed reaction to dermal fillers and proposed the more general term "inflammatory" to highlight the likely multifactorial nature of these adverse reactions. Many causes for delayed inflammatory reactions have been proposed. These include biofilms, infections, vaccinations and protein impurities acting as immunogenic triggers to produce inflammatory reaction.[7] In this case the cleansing agent material that splashed over her face maybe the trigger for immediate inflammation afterwards which subsided notably after treatment with steroids and antibiotics.

With regard to imaging, we did MRI imaging which showed extensive preseptal edema that extends to the cheeks without abscess formation or intraorbital extension, and tissue biopsy that showed a granulomatous inflammation a long with fat necrosis also we tried debridement and debulking along with steroids, which showed some good results.

Today after 2 years of treatment the patient's face is dysmorphic "Figure-3". We think that the patient delay in visiting the clinic, non-vigorous treatment from the first appearance and the patient non-compliance to treatment are the causing factors of what we see.

CONCLUSION

HA filler injection may lead to delayed complication that mandates a vigorous treatment and long term follow up. Furthermore, History of periorbital dermal filler injection should be considered in patient presenting with periorbital cellulitis.

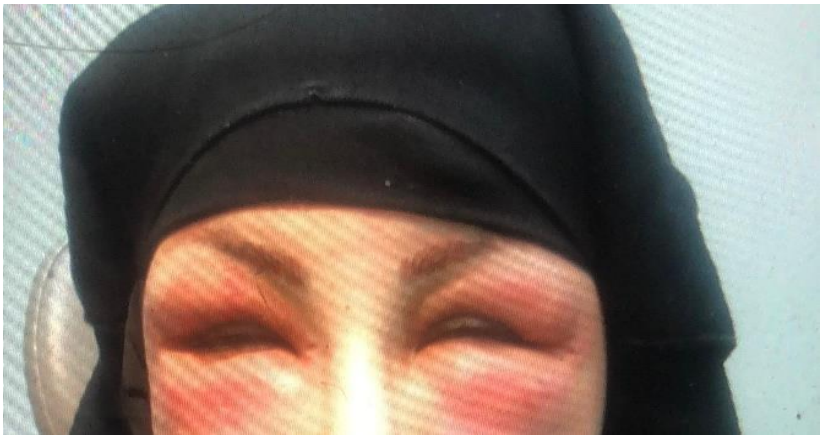

Figure 1: Bilateral peri-orbital swelling and erythema at presentation "patient consent was taken"

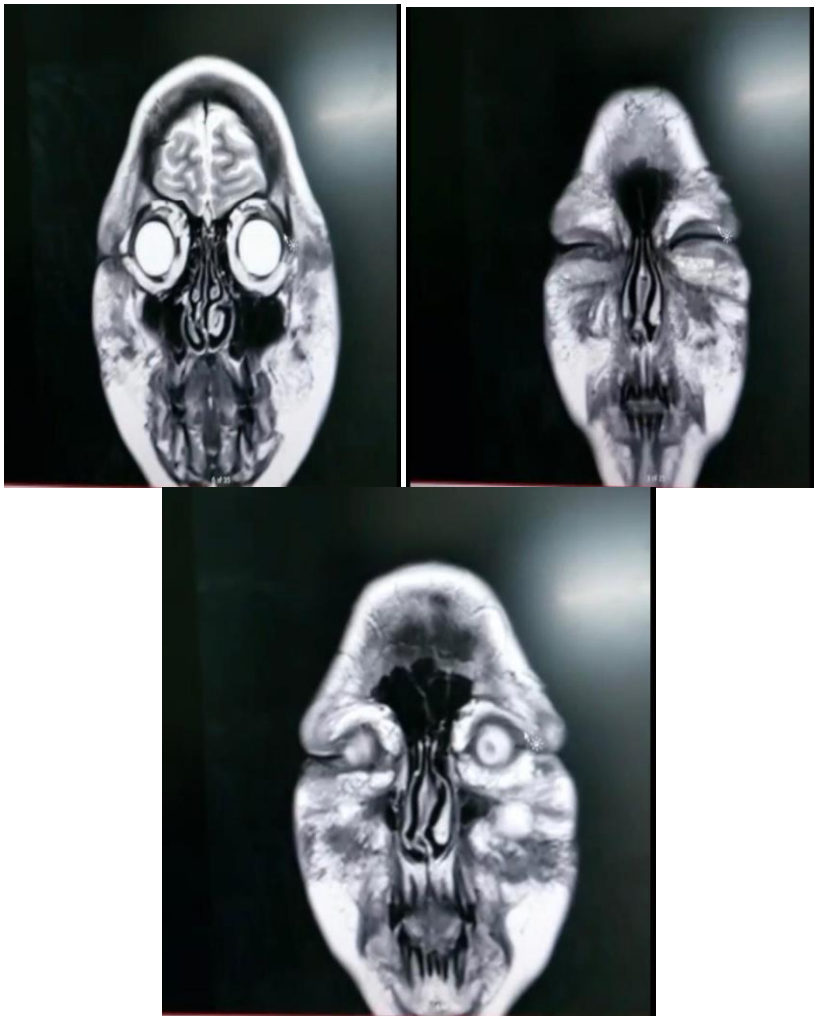

Figure-2: Orbital and face MRI showing.

Figure-3: Residual peri-orbital swelling after 2 years of treatment "patient consent was taken".

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