ISSN PRINT 2319 1775 Online 2320 7876

Research paper UGC CARE Listed (Group -I) Journal Volume 11,Iss 6, Sep 2022

A Review of Complications in Patients Receiving Cosmetic Dermatology

Dr. V.K. Garg[1]*, Dr. Gulshant Panesar[2], Dr. Sonali Saxena[3]

1. Professor, Department of Dermatology, Venereology & Leprosy, Santosh Medical College & Hospital, Santosh Deemed to be University, Ghaziabad.
2. Assistant Professor, Department of Dermatology, Venereology & Leprosy, Santosh Medical College & Hospital, Santosh Deemed to be University, Ghaziabad.
3. Senior Resident, Department of Dermatology, Venereology & Leprosy, Santosh Medical College & Hospital, Santosh Deemed to be University, Ghaziabad.

***Dr. V.K. Garg – Corresponding Author**

ABSTRACT

Background: In recent years, patients have had a remarkably wide range of alternatives for aesthetic rejuvenation. Neuromodulators, fillers, sclerotherapy, chemical peels, liposculpture, lasers, lights, and other energy devices are just a few of the alternatives that are frequently offered to patients today. These cosmetic dermatological procedures do carry some risk, as with any therapeutic therapies. For the best patient outcomes, problems must be identified and treated promptly.

Objectives: This review's first section will concentrate on the typical side effects of injectable cosmetic procedures such neuromodulators, fillers, and sclerotherapy. The problems of chemical peels, lasers, light and energy sources, and fat removal methods will be covered in the second section.

Methods and Materials: The findings of a MEDLINE search on cosmetic dermatology problems from 1989 to 2015 are compiled here. These problems' practical considerations are also offered.

ISSN PRINT 2319 1775 Online 2320 7876

Research paper UGC CARE Listed (Group -I) Journal Volume 11,Iss 6, Sep 2022

Results: There have been reports of complications following the use of neuromodulators, injectable hyaluronic acid, calcium hydroxylapatite, poly-L-lactic acid, polymethylmethacrylate, sclerotherapy, fat transfer, liposuction, cryolipolysis, chemical peels, lasers, and light sources like Q-switched lasers, intense pulsed light, nonablative, and ablative resurfacing lasers.

Conclusion: A review of the literature found a variety of alternatives for treating potential side effects from the numerous cosmetic dermatological procedures that are currently offered to patients.

INTRODUCTION

Patients now have a much wider range of alternatives for cosmetic rejuvenation than ever before, including neuromodulators, fillers, sclerotherapy, chemical peels, lasers, lights, radiofrequency, ultrasound, and other energy devices, as well as operations for fat reduction and transfer. These cosmetic dermatological therapies have some risk, just like all therapeutic operations.This article's first section serves as a succinct assessment of the most typical side effects that patients may experience after receiving injectable neuromodulators, fillers, and sclerotherapy.

Complications for the patient on the neuromodulator

Botulinum toxin A (also known as onabotulinumtoxin A [ONA], abobotulinumtoxin A [ABO], and incobotulinumtoxin A [INO] in the United States) and botulinum toxin B (rimabotulinumtoxin B) are the two serotypes that are currently accessible for clinical usage. Botulinum toxin B is effective for cosmetic purposes, however the Food and Drug Administration (FDA) has not approved it for this application. As a result, it is employed in the management of cervical dystonia.

ISSN PRINT 2319 1775 Online 2320 7876

Research paper UGC CARE Listed (Group -I) Journal Volume 11,Iss 6, Sep 2022

Eyebrow Ptosis

After receiving therapy for the glabellar region or frontalis, patients may experience "heavy eyebrows," or eyebrow ptosis. When treating the glabella, this complication may be caused by the injection of excessive dosages of botulinum toxin, an injection placed too low into the corrugators or frontalis, or the diffusion of the medication to frontalis muscle fibres . Corrugator and frontalis injections should be placed 2 cm above the orbital rim, respectively, to eliminate this sensation. Corrugator injections should also be put medial to the mid-pupillary line. It is important to thoroughly document the issue so that the dose of the neuromodulator can be changed for subsequent therapies. 5 Patients should not massage because this encourages the unintended dissemination of the medicine.

Patients who unintentionally raise excess upper eyelid skin with the frontalis are particularly vulnerable to developing eyebrow ptosis as a result of overusing the frontalis.[6]After treatment, these patients may feel that their brows are heavy or that their upper eyelid appears to be drooping since the excess skin is more obvious and less able to be hidden. In individuals with extra upper eyelid skin and those who rely on their brows to open their eyes, this can be avoided by administering lesser doses of neurotoxic to the frontalis.

Eyelid Ptosis

A severe side effect of neuromodulator diffusion caused by positioning the neuromodulator too inferiorly within the corrugator is eyelid ptosis. This causes the levator palpebrae superioris muscle, also known as the Müller muscle, and the superior tarsal muscle, which raise the upper eyelid, to become weak .7 With apraclonidine drops applied 2 to 3 times per day until resolution, this ptosis can be partially eased (up to 2 mm of eyelid elevation).

A Flat Chin

When the inferior orbicularis oculi muscle is accidentally injected, the zygomaticus major muscle may parse, resulting in a flaccid cheek with or without concomitant lip ptosis (Figure 4). Due to its proximity to the orbicularis oculi muscle, the zygomaticus major partially contributes to the inferior and medial lateral orbital dynamic rhytids in many people.

ISSN PRINT 2319 1775 Online 2320 7876

Research paper UGC CARE Listed (Group -I) Journal Volume 11,Iss 6, Sep 2022

The orbicularis oculi muscle covers the posterior portion of the lateral surface of the zygomaticus bone, where the zygomaticus major emerges from. It then proceeds diagonally to connect into the orbicularis oris muscle. Since it elevates the lateral upper lip diagonally and is the main muscle involved in smiling, lip ptosis would ensue with substantial paresis.[11]

Swelling

Swelling is a typical and benign side effect of any injectable treatment, especially when it is administered around the eyes. It usually goes away within one to two weeks.

A sterile abscess, a large swelling, or a hypersensitivity reaction should be considered if they are present or if the swelling is prolonged or substantial. After correcting the tear trough, lymphatic blockage, which is not generally accompanied by erythema or pruritus, can manifest as malar edoema [18]. The degree of preoperative lymphatic blockage in the patient, the depth of injection into the suborbicularis oculi fat pad, the volume injected, and the filler's viscosity are all possible contributing factors to this problem. [19]

Bruising

A frequent side effect of filler injections is bruising.Patients are more likely to experience bleeding issues if they use anticoagulants, antiplatelet drugs, nonsteroidal anti-inflammatories, herbal remedies (such gingko biloba, ginseng, or garlic), vitamins (like vitamin E or omega-3 fatty acids), or drink alcohol.[20] Many medical professionals advise patients to stop using these medications 1–2 weeks before to filler injections, if at all possible.

When an injection is administered in the dermal and immediate subdermal planes using a fanning or threading approach, bruising happens more frequently. [11] In general, the use of blunt tip cannulas, anterograde injection technique, gradual injections with smaller aliquots of product, and use of the smallest gauge needle possible can reduce the risk of bruising. [18,22]

The majority of postoperative purpura is benign and will go away on its own. A pulsed dye laser or powerful pulsed light can, however, be used to treat bigger or cosmetically disturbing purpura in order to hasten healing.

ISSN PRINT 2319 1775 Online 2320 7876

Research paper UGC CARE Listed (Group -I) Journal Volume 11,Iss 6, Sep 2022

There are now four commercial versions of hyaluronidase that have received FDA approval, although their prices and availability range greatly. Vitrase (ISTA Pharmaceuticals, Inc., Irvine, CA), Amphadase (Amphastar Pharmaceuticals, Inc., Rancho Cucamonga, CA), and Hydase are examples of the animal-derived hyaluronidase products (PrimaPharm, Inc., San Diego, CA). A human recombinant hyaluronidase product called Hylenex (Halozyme Therapeutics, Inc., San Diego, CA) received FDA approval in 2005. Hyaluronidase is generally well tolerated; injection site response is the most frequent consequence. Hyaluronidase is one of the active ingredients in bee venom, hence it should be administered with caution to patients who have a history of being allergic to bee stings. [24]

Animal-derived hyaluronidase products have been documented to cause anaphylaxis when retrobulbar injection is used, but not when subcutaneous administration is used.These nodules are frequently the result of unequal filler implantation or aggregation in patients who have HA or CaHA treatment, particularly when the nodules are palpable but not visible. These nodules may improve over the course of 1 to 2 weeks. A 27-gauge or 30-gauge needle can be used to pierce persistent HA lumps or bumps, and manual pressure can be used to empty the area and extrude the intact hyaluronan. Small local injections of hyaluronidase (10–20 units for each 0.1 mL of monophasic or biphasic HA product, respectively) can dissolve the HA if the product is not easily accessible.

CaHA frequently causes palpable but invisible nodules, which usually disappear 2 to 6 weeks after insertion. Nodules from CaHA can also be injected with regular saline to thin the substance and make it more flexible, enabling the doctor to massage the substance into different areas of the body. Otherwise, if the nodules are painful or visually noticeable, intralesional injections of triamcinolone or 5-fluorouracil may be required along with massage and/or local excision. Nodules in patients who receive injections of stimulatory drugs like PLLA are more likely to be fibrotic. [18]

Hyperpigmentation

In 5% to 30% of patients, post-treatment hyperpigmentation develops as a result of extravascular hemosiderin deposits.[17,18] Hyperpigmentation may be more likely in patients with

ISSN PRINT 2319 1775 Online 2320 7876

Research paper UGC CARE Listed (Group -I) Journal Volume 11,Iss 6, Sep 2022

hypercoagulability syndromes, fragile arteries, high total body iron levels, or usage of nonsteroidal anti-inflammatory medications or minocycline.[19] Normally, this pigmentation will go away in 6 to 12 months, but it can be treated with a Q-switched ruby laser to hasten the process.[20,21]

Mating telangiectatic

10% to 15% of patients may experience telangiectatic matting, which is a net of tiny telangiectasias that surrounds treated veins and might manifest months after therapy.[2] Obesity, oestrogen use, pregnancy, and severe inflammation following treatment as a result of insufficient compression or exceeding the minimal sclerosant concentration (MSC) of the therapy solution are risk factors for this condition. Therefore, reducing the volume utilised, stopping oral contraceptives temporarily, injecting sclerosant at the MSC with low pressure, and maintaining a healthy weight may reduce the likelihood of telangiectatic matting. Telangiectatic matting can be treated with powerful pulsed light, short-wavelength lasers (595-600 nm), and reinjection with glycerin to expedite improvement even though it typically resolves between 3 to 12 months. [23]

Thrombus in the deep veins

Reduced extremity Although DVT is regarded as an unusual adverse effect of sclerotherapy, its exact frequency is unknown because asymptomatic cases are likely to go untreated. According to several studies, the likelihood of developing DVT after sclerotherapy ranges between 0.5% and 3.2%. [14-17] Myers et al. discovered in 2008 that utilising undiluted or extremely diluted sclerosant, treating veins less than 5mm in diameter, and injecting less than 10mL of sclerosant all reduced the incidence of DVT after ultrasound-guided sclerotherapy. [18]

It is advised to motivate patients to follow a compression and frequent ambulation routine.Skin necrosis after sclerotherapy may be caused by vasospasm, excessive compression, or extravasation of the sclerosant into the perivascular tissue (particularly with hypertonic saline and nonfoam STS concentrations greater than 1%).59 Recent research indicates that artery occlusion, rather than extravasation, may be the predominant cause of necrosis following the application of detergent sclerosants. [20] The negative effects of cutaneous necrosis may be

ISSN PRINT 2319 1775 Online 2320 7876

Research paper UGC CARE Listed (Group -I) Journal Volume 11,Iss 6, Sep 2022

reduced by methods such dilution of extravasated hypertonic saline with normal saline, application of nitroglycerin paste to an area of suspected vasospasm, and excision of big ulcers. [17]

Injections into the arteries directly may also cause necrosis. The patient may experience instant discomfort if an artery is injected during sclerotherapy, and the injector may observe pallor in the artery's vascular distribution. Even if immediate action is required, it hasn't been shown to lead to better results.[22-24] 47 Procaine 1% injected intraarterially will complex with STS and become inactive, however this is ineffective for POL. The use of cooling, thrombolysis, intravenous heparin, and dextran may be considered. [21]

Severe consequences from cosmetic dermatologic procedures are uncommon. Although neuromodulators, fillers, and sclerotherapy generally provide patients with safe less invasive choices for rejuvenation, as these procedures become more widely used, the risk of unfavourable side effects also rises. Hopefully, further advancements in technology, technique, and prophylaxis will substantially reduce the hazards associated with rejuvenation operations.

REFERENCES

1.Niamtu J. Complications in fillers and Botox. Oral Maxillofac Surg Clin North Am 2009;21:13–21.

2. Matarasso SL, Matarasso A. “M” Marks the spot: update and treatment guidelines for botulinum toxin type A for the periocular area.Plast Reconst Surg 2003;112:1470–2.

3. Finsterer J. Ptosis: causes, presentation, and management. Aesthet Plast Surg 2003;27:193–204.

4. Klein AW. Complications, adverse reactions, and insights with the use of botulinum toxin. Dermatol Surg 2003;29:549–56.

ISSN PRINT 2319 1775 Online 2320 7876

Research paper UGC CARE Listed (Group -I) Journal Volume 11,Iss 6, Sep 2022

5. Aristemodeu P, Watt L, Baldwin C, Hugkulstone C. Diplopia associated with the cosmetic use of botulinum toxin A for facial rejuvenation. Ophthal Plast Reconstr Surg 2006;22:134–6.

6. Fabi SG, Sundaram H, Guiha I, Goldman MP. A two-center, openlabel, randomized, split-face study to assess the efficacy of one versus three intradermal injection sites of abobotulinumtoxinA in the treatment of lateral periocular rhytides. J Drugs Dermatol 2013;12: 932–7.

7. Hirsch RJ. Botulinum toxin. In: Sadick N, Lawrence N, Moy R, Hirsch RJ, editors. Concise manual of cosmetic dermatologic surgery. New York, NY: McGraw-Hill Medical; 2008; pp. 47–56.

8. Carruthers J, Fagien S, Matarasso SL. Consensus recommendations on the use of botulinum toxin type a in facial aesthetics. Plast Reconstr Surg 2004;114:1S–22S.

9. Beer K, Cohen JL, Carruthers A. Cosmetic uses of botulinum toxin A. In: Ward AB, Barnes MP, editors. Clinical uses of botulinum toxins. New York, NY: Cambridge University Press; 2007; pp. 342–3.

10. Carruthers J, Rzany B, Sattler G, Carruthers A. Anatomic guidelines for augmentation of the cheek and infraorbital hollow. Dermatol Surg 2012;38:1223–33.

11. Daines SM, Williams EF. Complications associated with injectable softtissue fillers: a 5-year retrospective review. JAMA Facial Plast Surg 2013;15:226–31.

12. Lemperle G, Morhenn VB, Charrier U. Human histology and persistence of various injectable filler substances for soft tissue augmentation. Aesthetic Plast Surg 2003;27:354–67.

13. Friedman PM, Mafong EA, Kauvar AN, Geronemus R. Safety data of injectable nonanimal stabilized hyaluronic acid gel for soft tissue augmentation. Dermatol Surg 2002;28:491–4.

14. Alsaad S, Fabi SG, Goldman MP. Granulomatous reaction to hyaluronic acid: a case series and review of the literature. Dermatol Surg 2012;38:271–6.

15. Matarasso SL, Herwick R. Hypersensitivity reaction to nonanimal stabilized hyaluronic acid. J Am Acad Dermatol 2006;55:128–31.

ISSN PRINT 2319 1775 Online 2320 7876

Research paper UGC CARE Listed (Group -I) Journal Volume 11,Iss 6, Sep 2022

16. O'Reilly P, Malhotra R. Delayed hypersensitivity reaction to Restylane SubQ. Orbit 2011;30:54–7.

17. Lemperle G, Rullan PP, Gauthier-Hazan N. Avoiding and treating dermal filler complications. Plast Reconstr Surg 2006;118:92S–107S.

18.Pavicic T. Calcium hydroxylapatite filler: an overview of safety and tolerability. J Drugs Dermatol 2013;12:996–1002.

19. Jordan DR, Stoica B. Filler migration: a Number of mechanisms to Consider. Ophthal Plast Reconstr Surg 2015;31:257–62.

20. Carruthers JD, Fagien S, Rohrich RJ, Weinkle S, et al. Blindness caused by cosmetic filler injection: a review of cause and therapy. Plast Reconstr Surg 2014;134:1197–201.

21. Goldman MP, Sadick NS, Weiss RA. Cutaneous necrosis, telangiectatic matting, and hyperpigmentation following sclerotherapy. Etiology,prevention and treatment. Dermatol Surg 1995;21:19–29.

22. Davis LT, Duffy DM. Determination of incidence and risk factors for post-sclerotherapy telangiectatic matting of the lower extremity:a retrospective analysis. J Dermatol Surg Oncol 1990;16:327–30.

23. Parsi K. Paradoxical embolism, stroke and sclerotherapy. Phlebology 2012;27:147–67.

24.Zimmet SE. The prevention of cutaneous necrosis following extravasation of hypertonic saline and sodium tetradecyl sulfate.J Dermatol Surg Oncol 1993;19:641–6.