



Ocular complications resulting from commercial cosmetic procedures

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Learning objectives

- 1. Further knowledge in various facial cosmetic treatments currently offered that carry potential ocular risk
- 2. Recognise adverse outcomes following blepharopigmentation, episcleral tattooing, and cosmetic laser procedures
- 3. Recognise adverse outcomes following eyelash extensions, dermal fillers and botulinum toxin



Introduction – why talk about this?

CLINICAL AND EXPERIMENTAL

OPTOMETRY

REVIEW

Ocular injuries resulting from commercial cosmetic procedures

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Submitted: 22 February 2019 Revised: 2 June 2019 Accepted for publication: 12 July 2019 The prevalence of potentially precarious cosmetic facial procedures appears to be on the rise. A significant amount of these cosmetic procedures are offered and performed by operators without formal medical training and anatomical knowledge, and with variable degrees of skill. Some of these procedures can result in devastating sight-threatening complications, and many of the individuals undergoing such treatments are relatively young and healthy. Patients need to be aware of the potential risks, including permanent visual loss, before embarking on any cosmetic facial procedure. Optometrists may be the first point of contact for patients with ocular complaints following these treatments. Hence, the authors present here a review on the various ocular injuries that may result from commercial cosmetic procedures.

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Key words: cosmetic, injectable fillers, laser, ocular injury, safety



Case 1

- 27F, presented to the ED with left eye pain 5 hours after undergoing a bilateral upper lid eyeliner tattooing procedure
- BCVA was 6/18 ou. The pH was 7 ou.
- Both upper lids were mildly oedematous with bilateral conjunctival hyperaemia more pronounced on the left.
- Subtotal epithelial defect involving 80 per cent of the left corneal surface. Heaped epithelium and an epithelial flap were visible at the inferonasal corneal margin.
- Diffuse punctuate epithelial erosions were seen over the inferior two-thirds of the cornea in the right eye.



Case 1

- C/w mild chemical burns to the corneas, worse on the left than right.
- Treatment consisted of analgesia and a combination of chloramphenicol 1% ointment and lubricating eyedrops to both eyes four times per day.
- Over the course of follow-up over the next eight weeks, her BCVA improved to R: 6/6 and L: 6/9+1. The epithelial defect in the cornea of the left eye healed and the punctuate epithelial erosions in the right eye largely resolved.



Case 2

- A 19-year-old female presented to ED with right eye pain after having a procedure to apply artificial eyelashes
- She had a past ocular history of astigmatism
- Uncorrected visual acuity was R: 6/12 and L: 6/9. On slitlamp examination, revealed multiple fine corneal abrasions in the right eye.
- Eyelids were everted to remove any foreign material and the conjunctival fornices were swept.
- The patient was managed with analgesia, removal of the offending lashes and glue, and chloramphenicol 1% ointment four times per day



Blepharopigmentation

- Used to enhance features of the eyes.
- Cosmetic tattoos → illusion of make-up with the advantages of improved precision, reduced costs and saved time.
- Permanent pigment granules can be implanted into the dermal layers of the eyelid margin, eyebrows or lip margin to simulate make-up.



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Image available with public access from:

De, Monya, Harry Marshak, Nicolas Uzcategui and Eli L. Chang. "Full-thickness eyelid penetration during cosmetic blepharopigmentation causing eye injury." Journal of cosmetic dermatology 7 1 (2008): 35-8 .

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Complications of blepharopigmentation

Inadvertent corneal exposure to the alkaline anaesthetic skin cream has been reported to result in corneal burns

Ocular surface disease, with shortened tear film break-up time and induced Meibomian gland loss.

One case described eyelid tattooing as a trigger for diffuse lamellar keratitis (DLK)

Risk of PEI: Cases of fullthickness penetration of the tattoo needle through the eyelid have been reported.



Episcleral tattooing

- Dye is injected beneath the conjunctiva to achieve the appearance of coloured sclera
- Posterior scleritis, acute uveitis, photophobia and subepiscleral nodules at injection sites
- Inadvertent globe penetration and orbital cellulitis have also been reported
- Banned in Canada and Australia





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Cosmetic laser procedures

- Used by dermatologists and now commercially
- Cutaneous lasers use the principle of selective photothermolysis, whereby destruction of specific targets is achieved through suitably brief pulses of the laser
- This technique has allowed treatment of vascular or pigmented lesions, facial rejuvenation and hair removal



Cosmetic laser procedures

Numerous case series have described anterior segment injury from laser-assisted eyebrow epilation

- The skin of the eyelid is very thin as it lacks subcutaneous fat.
- Bell's phenomenon, whereby the globe rolls upward on bilateral eyelid closure, also means the pigment-rich iris is brought closer to the laser penetration zone during the procedure.
- Some cases of iris atrophy and acute anterior uveitis have been reported.

In laser skin resurfacing treatments, carbon dioxide lasers are employed to improve skin texture, eliminate wrinkles and reverse sun damage.

Despite the use of corneal shields, case reports have described severe exposure keratopathy requiring surgical
intervention, bullous keratopathy and intrastromal bleeding as a result of thermal injury as complications of
the procedure.

Rare cases of retinal injuries



Eyelash Extensions

- Can be made from animal hair such as horse or mink fur or synthetic man-made plastic fibres
- Usually performed in beauty parlours and requires re-application every six weeks



Eyelash extension complications

- Traction alopecia
- Corneal abrasions
- Subconjunctival deposition
- A retrospective study involving 107 women who presented to ophthalmology clinics in Japan with ocular complaints related to eyelash extensions.
 - The bonding agent (glue) used to attach the extensions, which contained formaldehyde, caused keratoconjunctivitis and allergic blepharitis in 42 patients.



Dermal Fillers

- Facial soft tissue augmentation with dermal fillers is increasingly gaining popularity worldwide
- Fillers including autologous fat, hyaluronic acid, collagen, paraffin, and calcium hydroxyapatite can be injected under certain areas of the face to create volume, define facial contours and reduce the appearance of wrinkles



Woman goes blind in one eye from cosmetic filler injected in face

Four Corners By Louise Milligan

Posted Mon at 5:10am

Australian doctors have treated their first patient who has gone permanently blind from having dermal filler injected into her face.

A Four Corners investigation revealed that in April, the woman was taken to the ophthalmology department at Sydney's Prince of Wales Hospital, where despite the best efforts of doctors, her sight in one eye could not be restored.

She was given the filler by a nurse at a clinic where there was no doctor physically present.

Prince of Wales Hospital ophthalmologist, Dr John Downie, who treated the patient, agreed it was "alarming" that a patient could go blind from what is marketed as a simple cosmetic procedure.



PHOTO: Doctors say blindness can occur when an artery is blocked by dermal filler. (Reuters: Mike Segar)

"The problem I get is that people perceive a cosmetic procedure to have limited or no risk, and that's not the case," Dr Downie said.



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Severe Visual Loss and Cerebral Infarction After Injection of Hyaluronic Acid Gel

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Abstract

Abstract: We report a case of a 23-year-old man with cerebral infarction and permanent visual loss after injection of a hyaluronic acid gel filler for augmentation rhinoplasty. The patient was admitted to the hospital with complaints of loss of vision in the right eye, facial paralysis on the right side, and paralysis of the left limbs with severe pain during augmentation rhinoplasty with filler injection. Brain magnetic resonance imaging and computed tomography showed ophthalmic artery obstruction and right middle cerebral artery infarction. Acute thrombolysis was performed to treat the infarction; however, the patient's condition did not improve. Intracerebral hemorrhage in the right temporal/frontal/occipital/parietal lobe, subarachnoid hemorrhage, and midline shifting were observed on brain computed tomography after 24 hours after thrombolysis. Emergency decompressive craniectomy was performed. After the surgery, the patient continued to experience drowsiness, with no improvement in visual loss and motor weakness. Three months later, he could walk with cane. This case indicates that surgeons who administer filler injections should be familiar with the possibility of accidental intravascular injection and should explain the adverse effects of fillers to patients before surgery.



Retrograde arterial embolism

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Sites most at risk



Beleznay K, Carruthers JD, Humphrey S, Jones D. Avoiding and Treating Blindness From Fillers: A Review of the World Literature. Dermatol Surg 2015;41(10):1097-117



The Fillers





Complications of fillers

- Permanent visual loss associated with dermal fillers is very rare devastating and real.
- Risks should be thoroughly explained to clients prior to the procedure and detailed knowledge of facial vascular anatomy is necessary for all operators.



Botox

- Botulinum toxin is a potent neurotoxin which causes flaccid paralysis through the presynaptic blockade of acetylcholine release at the neuromuscular junction
- Its first documented therapeutic use was in 1973, when Scott et al. injected the toxin to treat paralytic strabismus
- In ophthalmology, periocular botulinum toxin injections can be used to treat blepharospasm, facial spasm and lid retraction.
- Cosmetic use includes injections for glabellar, forehead and lateral canthal rhytids (wrinkles)



Complications from using Botox

Common:

• Ptosis

Uncommon:

• Diplopia, periorbital ecchymosis, keratitis sicca and ectropion.

Rare:

• Retinal detachment, acute angle closure glaucoma and globe perforation have been reported in case reports. However, these have been for non-cosmetic procedures relating to extraocular muscle injections.



Final thoughts

- Many of the individuals undergoing such procedures are often young and otherwise healthy
- As many of the procedures are performed by non-medical personnel, patients may often speak to their optometrists for advice regarding the potential associated risks



Thankyou for listening.

Email me if you have any questions:

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