

Introduction

- Patients with various lesions of the head and neck may have compromise of facial nerve function.
- Facial nerve (CN VII) has various roles, including movement of facial muscles and, importantly, eye closure.
- When facial nerve is sacrificed or damaged during a surgical cases, steps are often taken intraop to surgically correct the deficit and allow eye closure. However, these patients may not immediately realize the benefit of these interventions.
- In the postop period, appropriate eye care is critical to prevent exposure keratopathy due to inability to close eye.
- Exposure keratopathy is damage to the cornea that occurs primarily due to prolonged exposure of the ocular surface to the outside environment. It can lead to ulceration, microbial keratitis, and permanent vision loss from scarring.

Proposed Intervention

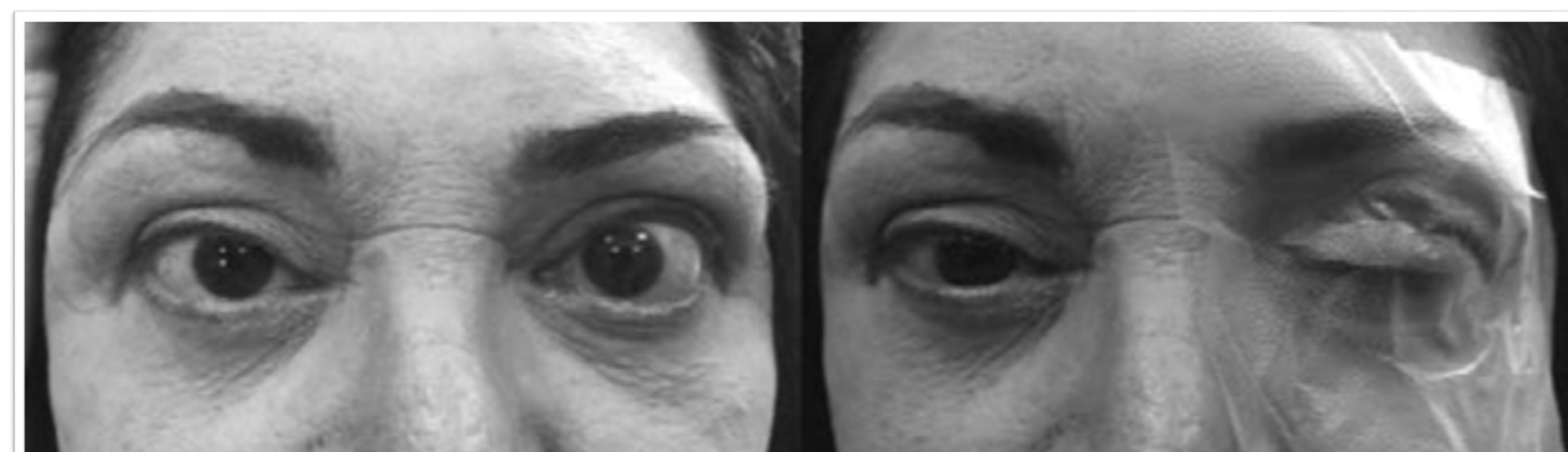
We propose a standardized intervention in these patients to prevent exposure keratopathy. The components of the intervention include:

- Recognition of at-risk patients
- Initiation of moisture chamber while inpatient
 - Moisture chambers have been shown to be superior to lubricant eye drops alone ^{1,2,3,4}
- Nursing and patient education
 - Education on appropriate placement of moisture chambers and eye
 - Appropriate technique to be continued at home to prevent exposure keratopathy
- Upon discharge, patients and caretakers will be instructed on the appropriate postop eye care.
 - Create a moisture chamber using ointment placed both in and around the eye, combined with standard household plastic wrap to create a seal over the ointment.
 - Standardized Epic discharge instructions

Moisture Chamber Instructions

To create the moisture chamber:

- Obtain regular plastic wrap (Glad Press'n Seal® or generic plastic wrap) and cut a square shaped sheet large enough to cover your eye, eyebrow, part of nose and cheek
- Apply ointment to eye and around the eye / orbital rim to help form a seal
- Plastic wrap is placed over eyelid and pressed down around orbital rim to seal (see picture below)
- Use overnight. To remove, simply peel off
- Follow up with an ophthalmologist (eye doctor) as an outpatient for surveillance.



Dry Eye Survey

Symptoms assessed using validated "Standardized Patient Evaluation of Eye Dryness" (SPEED) Questionnaire while inpatient and then at their outpatient visit

SPEED Test

Please complete the questionnaire below. Circle the score that most closely describes your situation.

1. The FREQUENCY of your symptoms.
0 = Never
1 = Sometimes
2 = Often
3 = Constant

SYMPTOMS	Never	Sometimes	Often	Constant
Dryness, Grittiness or Scratchiness	0	1	2	3
Soreness or Irritation	0	1	2	3
Burning or Watering	0	1	2	3
Eye Fatigue	0	1	2	3

2. The SEVERITY of your symptoms.
0 = No problems
1 = Tolerable - not perfect but not uncomfortable
2 = Uncomfortable - irritating but does not interfere with my day
3 = Bothersome - irritating and interfere with my day
4 = Intolerable - unable to perform daily tasks

SYMPTOMS	No problem	Tolerable	Uncomfortable	Bothersome	Intolerable
Dryness, Grittiness or Scratchiness	0	1	2	3	4
Soreness or Irritation	0	1	2	3	4
Burning or Watering	0	1	2	3	4
Eye Fatigue	0	1	2	3	4

Now add up the total of ALL eight scores.

Results of Survey

- Dry eye survey was given to three patients so far with inadequate eye closure needing eye care
- N = 3
- Predischarge symptoms
 - Average SPEED total = 6.5
 - Worst symptoms were "burning or watering"
- Postdischarge symptoms
 - Average SPEED total = 6.5
 - Stable symptoms, no worsening
- Well-tolerated and simple to use

Conclusions

- Patients with facial nerve injury can be susceptible to exposure keratopathy due to inability to adequately close the eye
- Moisture chambers can prevent exposure keratopathy and have been shown to be more effective than eye lubricant and taping at night
- They are simple to perform at home and well-tolerated
- On going surveillance is critical to effective management

References

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2. Shan H, Min D. Prevention of exposure keratopathy in intensive care unit. Int J Ophthalmol. 2010; 3(4): 346-348.
3. Keir N et al. Evaluation of the Standard Patient Evaluation of Eye Dryness (SPEED) Questionnaire. ARVO Annual Meeting Abstract. 2013 June; 54(15).
4. So HM et al. Comparing the effectiveness of polyethylene covers (Gladwrap) with lanolin (Duratears) eye ointment to prevent corneal abrasions in critically ill patients: a randomized controlled study. Int J Nurs Stud. 2008 Nov;45(11):1565-71. doi: 10.1016/j.ijnurstu.2008.02.005. Epub 2008 Apr 18.