Temporary Eyelid Closure Appliqué

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Tarsorrhaphy is used for the treatment of severe ocular surface disorders and for damage from ocular exposure. The temporary tarsorrhaphy has been shown to aid in the healing of corneal epithelial defects. A variety of temporary techniques have been suggested that allow eyelid closure not only to enable epithelial healing but also to allow access to the eye. We describe a temporary eyelid closure appliqué, similar to the Stamler eyelid splint, that provides nearly complete closure of the eyelid that will last for days. The technique is inexpensive, can be applied by a family member with minimal training, and can be used in almost any setting.

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METHODS

The TLC appliqué is created by cutting a half circle with a radius of approximately 20 mm, de-
pending on the patient’s orbital anatomy, from a multipurpose skin barrier (Stoma-
hesive Skin Barrier; ConvaTec, Princeton, NJ) or a similar ostomy barrier. It is recom-
mended that the TLC appliqué be cut slightly larger than anticipated to en-
sure an appropriate splinting effect. The pretarsal area of the upper eyelid is cleaned
with 70% ethanol wipes and allowed to dry. Benzoin compound is applied to the
upper eyelid with a cotton-tipped swab (Figure 1) and allowed to dry. The white
backing paper is removed from the TLC appliqué and the upper eyelid is pulled in-
feriorly to place the skin under tension. The adhesive side of the TLC appliqué is
applied to the eyelid (Figure 2). The pa-
tient is then asked to open the eye to en-
sure effective ptosis (Figure 3). Exami-
nation of the eye and instillation of drops
are possible by lifting the skin superiorly
at the level of the brow or by pulling the
lower eyelid inferiorly (Figure 4).

REPORT OF CASES

CASE 1

A 40-year-old woman who had a his-
tory of severe developmental delay and a seizure disorder was seen for an
inpatient consultation because of bilateral “corneal abrasions.” She was
found to have bilateral inferior cor-
nal epithelial defects measuring ap-
proximately 4 × 3 mm with rolled
edges and without visible infiltrate.
Lagophthalmos of 3 mm was noted
in both eyes, with corneal defects
correlating with the position of the
palpebral fissures. A poor tear lake
and absent Bell reflex was noted. The
patient was noted to sleep with her
eyes partially open. She had been
recently diagnosed with diabetes
mellitus complicated by renal fail-
ture. Examination revealed bilat-
eral 4 × 5-mm inferior epithelial de-
fects with rolled edges and surround-
ing infiltrate. Bilateral lagophthalmos
of 4 mm was noted, with defects cor-
relating with the position of the pal-
epbral fissures. Cultures were nega-
tive for organisms, and prophylactic
moxifloxacin hydrochloride ophthal-
mic solution (Vigamox drops; Al-
con, Fort Worth, Tex) were pre-
scribed. Aggressive lubrication with
a preservative-free lubricating eye
ointment (Lacri-Lube Eye Oint-
ment; Allergan Inc, Irvine, Calif) was
recommended. After 3 days of lu-
mication, there were no signs of vi-
sual improvement. After a lengthy
discussion of the severe nature of the
patient’s systemic disease and sub-
sequent epitheliopathy, keratopa-
thy, and neuropathy, a lateral tar-
sorrhaphy was recommended. The
patient adamantly refused the sur-
geical procedure. Ptosis with cyano-
acrylate adhesive was attempted; how-
ever, this did not last more than
36 hours and resulted in eyelid and
eyelash irritation. A Stamler eyelid
splint was applied on 2 occasions,
but neither splint lasted more than
36 hours. The patient reported brow
irritation from the sharp superior
dge of the splint. A TLC appliqué
was placed on day 6. The patient tol-
erated the application and therapy
well. A new TLC appliqué was re-
quired on day 10 and lasted 5 days.
At discharge, the patient’s epide-
thelial defects had improved to one
third of their initial size and the in-
filtrates had resolved. Instructions
for use of the TLC appliqué were ex-
plained to the staff at the patient’s nurs-

ing facility for ongoing treatment.

CASE 2

A 37-year-old man who had a his-
tory of insulin-dependent diabetes
mellitus complicated by renal fail-
ture was seen for an inpatient con-
ultation because of painless blurry
vision. Examination revealed bilat-
eral 4 × 5-mm inferior epithelial de-
fects with rolled edges and surround-
ing infiltrate. Bilateral lagophthalmos
of 4 mm was noted, with defects cor-
relating with the position of the pal-

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<thead>
<tr>
<th>Table. Temporary Eyelid Closure Appliqué and Other Techniques</th>
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<tbody>
<tr>
<td>Technique</td>
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<tr>
<td>Cyanoacrylate adhesive</td>
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<td>Botulin toxin injection</td>
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<td>Drawstring</td>
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<td>Stamler eyelid splint</td>
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<tr>
<td>Temporary eyelid closure appliqué</td>
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</tbody>
</table>

* indicates inexpensive; $, moderately expensive; and $$$, most expensive.

CASE 3

A 60-year-old man having a recent di-
agnosis of Bell palsy was seen in our
clinic and reported irritation and the
sensation of a foreign body in the right
eye. Ophthalmic examination re-
valed right-sided seventh nerve palsy
with lagophthalmos greater than 8
mm and diffuse inferior punctate ep-
thelial erosions of the right eye. A TLC
appliqué was placed, and the patient
reported complete resolution of symptoms within 3 days. He was able to make and apply his own TLC at home with limited instruction. Figure 5 shows the patient before and after placement of the TLC, with his eyes open and closed.

COMMENT

The TLC appliqué is a simple, economical, and efficacious new approach for temporary tarsorrhaphy. It has significant advantages compared with established therapies.

The classic sutured tarsorrhaphy is the gold standard of therapy; however, it is not without significant disadvantages. A lateral tarsorrhaphy is effective but can dehisce and may deform the delicate eyelid margin. Inter marginal tarsorrhaphy may lead to damage to the eyelid margin, entropion, and trichiasis. Though the technique is straightforward, both sutured tarsorrhaphy techniques are invasive and may be contraindicated in a patient who is receiving anticoagulant therapy or who has a systemic illness. In addition, examination of the eye can be difficult. Even the simpler drawstring tarsorrhaphy is an invasive technique and requires technical acumen.

Short-term therapeutic options include tarsorrhaphy by means of application of cyanoacrylate adhesive, botulin injection, and the Stamler eyelid splint. As previously reported and in our experience, cyanoacrylate adhesive often does not result in an adhesion of acceptable length. In addition, it remains difficult to reverse the adhesion tarsorrhaphy to enable examination of the eye and instillation of drops. Botulin injection is expensive and invasive, and carries the risk for transient extraocular paresis with potentially persistent hypotropia. Further, there is a lag between botulin injection and resultant ptosis; studies suggest that total ptosis is achieved in 75% of patients at a mean of 3.6 days.

The Stamler eyelid splint has some significant advantages but, in our experience, requires frequent reapplication and provides poor patient comfort. The TLC appliqué is based on similar principles but is created from an inexpensive, commonly found material—ostomy barrier. In addition, it adds a component of weight to the upper eyelid similar to a gold weight improving efficacy. The TLC appliqué offers quick, noninvasive, and non-technical application. Patient comfort is improved because of the nature of the material and the ability to contour it to the patient’s anatomy. In our experience, the TLC appliqué lasts 4 to 7 days without reapplication and allows easy examination of the ocular surface. The simplicity and safety of the procedure also enable easy instruction about reapplication in patients who require longer periods of closure between examinations.

CONCLUSIONS

The TLC appliqué is a novel combination of splint and weight that induces ptosis and may be used in the treatment and prevention of corneal exposure and the promotion of ocular surface healing. It is a quick, inexpensive, and noninvasive technique that reliably and comfortably results in therapeutic ptosis for 4 to 7 days. We have found the TLC appliqué to be particularly useful in pa-
tients with neuropathy or seventh nerve paralysis and in patients who are sedated or comatose.

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REFERENCES