**Supplemental Digital Content:**

eFigure 1. Best-corrected visual acuity before and after cyanoacrylate tissue adhesive application

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**eFigure 1. Best-corrected visual acuity (BCVA) before and after cyanoacrylate tissue adhesive (CTA) application**

The median BCVA in logarithm of the minimum angle of resolution (logMAR) was 2.3 and 2.0 before and after application, respectively. Bar graph centers on median and boxes represent minimal to maximal values. P=0.44 Wilcoxon matched-pairs signed rank test.



**eTable 1. Univariable analysis of CTA application failure**

CTA failure was defined as an open globe in need of surgical intervention within one month of the initial CTA applications (regardless of total number of CTA applied).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | Odds Ratio | 95% CI | | | P value |
| Female | 1.28 | 0.63 | - | 2.62 | 0.588 |
| Age | 1.01 a | -0.64 | - | 8.40 | 0.788 |
| Systemic condition | 0.72 | 0.27 | - | 1.87 | 0.623 |
| Systemic autoimmune condition | 0.55 | 0.22 | - | 1.40 | 0.261 |
| Systemic immunosuppression | 0.64 | 0.26 | - | 1.57 | 0.378 |
| Ocular surface disease | 1.44 | 0.62 | - | 3.34 | 0.412 |
| Use of ophthalmic corticosteroid | 0.96 | 0.41 | - | 2.25 | 1.000 |
| Size of perforation | -7.30 a | -11.44 | - | -3.16 | 0.001 |
| Perforation (vs thinning) | 1.71 | 0.81 | - | 3.61 | 0.193 |
| Central location (vs peripheral) | 1.05 | 0.51 | - | 2.19 | 1.000 |
| Microbial etiology | 0.77 | 0.38 | - | 1.56 | 0.475 |
| Laceration | 0.53 | 0.10 | - | 2.86 | 0.698 |
| Keratoprosthesis | 0.82 | 0.19 | - | 3.57 | 1.000 |
| Corneal graft | 0.94 | 0.37 | - | 2.40 | 1.000 |
| Sterile melt | 1.34 | 0.64 | - | 2.21 | 0.457 |
| One-time CTA application (vs multiple) | 2.30 | 1.07 | - | 4.94 | 0.040 |
| a Differences, instead of Odds Ratio, shown for continuous variables age and size of perforation | | | |  |  |
| CTA: cyanoacrylate tissue adhesive |  |  |  |  |  |
| OSD: ocular surface diseases |  |  |  |  |  |

**eFigure 2. Success rate of CTA application in small versus large perforation/thinning**

Success rate was 79% in small perforation/thinning and 49% in large perforation/thinning. P=0.013 Fisher’s exact test. Perforation or thinning smaller than 3.14 mm2 (corresponding to 2 mm in diameter of a circular lesion) was defined as small and otherwise considered large. Success is defined as intact globe within one month of the initial CTA application without surgical intervention (regardless of total number of CTA applied).



**eTable 2. Brief summary of previous studies on the use of CTA in corneal thinning and perforation**

Studies with more than 20 cases of CTA use and adequate clinical details were included.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Study | # of eyes with perforation thinning | # of eyes glued | Mean CTA retention (days) | CTA retention range (days) | Success Rate | Re-glue Rate | Enuc Evis rate |
|
| 1983 Weiss et al 1 | 80 | 80 | 50 | 1-912 | 44.0% | n/a | 7.0% |
| 1993 Leahey et al 2 | 44 | 44 | 72 | 1-660 | 32.0% | n/a | 9.8% |
| 1996 Moschos et al 3 | 385 | 385 | 63 | 3-112 | n/a | 5.2% | 0.0% |
| 2003 Sharma et al 4 | 41 | 22 | n/a | n/a | 86.0% | 31.0% | 0.0% |
| 2003 Garg et al 5 | 73 | 73 | 33 | 1-255 | 76.0% | 38.0% | 12.1% |
| 2010 Moorthy et al 6 | 46 | 46 | 39 | 1-395 | 37.0% | 31.0% | 4.3% |
| 2017 Loya et al 7 | 127 | 49 | n/a | n/a | 28.6% | 10.2% | n/a |

**eTable 2 continued**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Study | Etiologies | | | | | | Comments |
|  | Bacterial | Herpetic | Fungal | Rheumatoid | Burn | Trauma |
| 1983 Weiss et al 1 | 29.0% | 26.0% |  | 15.0% | 7.0% | 7.0% | Reported 2 cases of marked increase in intraocular pressure and 7 cases that developed corneal infiltrates |
| 1993 Leahey et al 2 | 27.0% | 5.4% |  | 18.9% | 13.5% | 8.1% | Included 6 cases of leaking filtering blebs. Reported improved vision in 52% of eyes |
| 1996 Moschos et al 3 | 21.0% | 15.0% |  | 21.5% | 11.0% | 16.0% | Largest series to date. Applied to perforation greater than 3 mm with use of mattress sutures. Followed up to 6 months. Reported 2 cases of infection and 3 cases of hypotony |
| 2003 Sharma et al 4 | 21.9% | 4.9% | 26.8% |  | 4.9% | 17.0% | Randomized controlled clinical trial comparing fibrin glue vs. CTA with 3 months follow-up. Reported deep KNV in 46% and GPC in 36% of eyes |
| 2003 Garg et al 5 |  |  | 100.0% |  |  |  | All cases are fungal keratitis |
| 2010 Moorthy et al 6 |  | 100.0% |  |  |  |  | All cases are corneal perforations secondary to herpetic keratitis |
| 2017 Loya et al 7 | 19.6% | 10.2% | 8.6% | 48.0% |  |  | Etiologies were for the entire cohort. Success defined as needing additional procedure after one CTA application |

Enuc: Enucleation. Evis: Evisceration. KNV: corneal neovascularization. GPC: giant papillary conjunctivitis.

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