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Shield vs new disposable eye patch for occlusion during lasek refractive surgery Surgeon and patient preference and outcomes of standard reusable

Abstract

Purpose: To compare patient and surgeon preferences and outcomes for standard reusable eye shield vs. new disposable eye patch ("MASK-it") for occlusion during laser vision correction (LASEK).

Methods: 31 patients (62 eyes) who underwent LASEK or epi-LASEK at one sub-specialty refractive practice were enrolled. Eyes were randomized to be occluded with either the standard reusable plastic shield or the new disposable paper patch. Patients were asked to assess comfort, perceived cleanliness and ease of fixation on a 4-point scale (1=poor, 2=fair, 3=good, 4=excellent). The surgeon was asked to assess quality of patient fixation and ease of use on the same scale.

Results: The difference in the mean score for patient comfort between the disposable occluder (3.43) and the reusable shield (3.46) was not statistically significant ($p>0.05$). The mean score for cleanliness as rated by patients favored the disposable paper occluder over the reusable plastic standard shield (3.50 vs. 3.20; $p<0.05$). Patients reported easier fixation using the reusable shield vs. the disposable occluder (3.50 vs. 3.30; $p<0.05$). The surgeons graded the quality of fixation to be better when using the reusable shield vs. the disposable occluder (3.7 vs. 3.50; $p<0.05$) and the ease of use to be superior for the disposable occluder vs the reusable shield (3.60 vs. 3.30; ($p<0.05$).

Conclusion: The ease of fixation as reported by patients and the quality of fixation as reported by the surgeon was superior for the standard plastic occluder vs. the new disposable patch. Therefore, the use of the new disposable eye patch ("MASK-it") in its current form for occlusion of the non-operated eye during laser vision correction cannot be recommended. The disposable eye patch might become suitable for use as an occluder during refractive surgery if it was modified to have a higher dome and made more opaque to improve its efficacy.

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Introduction

All types of laser-assisted corneal refractive surgery (LASIK, PRK, LASEK).[1–5] require occlusion of the non-operated eye to prevent cross-fixation by the fellow eye during photoablation, which would cause a decentration of the ablated area. Most surgeons use a standard plastic eye shield, which is inexpensive but may become dirty with repeated use, and is not specifically designed for complete and effective occlusion (due to the presence of holes that may require additional covering). Recently, Haag-Streit (Essex, UK) introduced a disposable paper eye patch specifically designed for occlusion during visual field testing ("MASK-it"; Figure1). This study compared the disposable paper occluder ("MASK-it") to the standard reusable plastic shield with respect to comfort (patient assessment), cleanliness (patient assessment), fixation (patient and surgeon assessment) and ease of use (surgeon assessment) during LASEK.

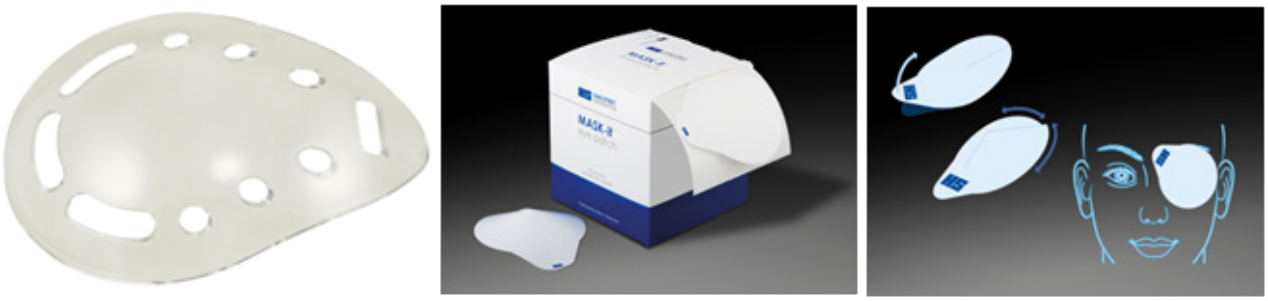

Figure 1 Left: reusable plastic occluder. Right: disposable paper occluder ("MASK-it").

Methods

31 patients (62 eyes) who underwent LASEK or epi-LASEK at one sub-specialty refractive practice were enrolled. Eyes were randomized to be occluded with either the standard reusable plastic shield or the new disposable paper patch. Since there have been reports that patients often perceive greater pain following the procedure1 in the eye lasered second (presumably because of physiological or psychological "priming" of pain receptors/perception after the first eye is lasered), eyes were also randomized with respect to which eye was ablated first.[6] Patients were asked to assess comfort, perceived cleanliness (with help from their OR companion), and ease of fixation on a 4-point scale (1=poor, 2=fair, 3=good, 4=excellent). The surgeon was asked to assess quality of patient fixation and ease of use on the same scale.

Results

The difference in the mean score for patient comfort between the disposable occluder (3.43) and the reusable shield (3.46) was not statistically significant ($p>0.05$). The mean score for cleanliness as rated by patients favored the disposable paper occluder over the reusable plastic standard shield (3.50 vs. 3.20; $p<0.05$). Patients reported easier fixation using the reusable shield vs. the disposable occluder (3.50 vs 3.30; $p<0.05$). The surgeons graded the quality of fixation to be better when using the reusable shield vs the disposable occluder (3.7 vs 3.50; $p<0.05$). The surgeons graded the ease of use to be superior for the disposable occluder vs. the reusable shield (3.60 vs. 3.30; ($p<0.05$) (Table 1).

Table 1 Comparison between the disposable paper occluder ("MASK-it") and the standard reusable plastic shield in comfort, cleanliness, fixation and ease of use

	Disposable (new) occluder	Reusable (standard) shield
Comfort (Patient Assessment)	3.43	3.46
Cleanliness (Patient Assessment)	3.50	3.20
Fixation (Patient Assessment)	3.30	3.50
Fixation (Surgeon Assessment)	3.50	3.70
Ease of use (Surgeon Assessment)	3.60	3.30

Discussion

Surprisingly, there seems to be no study in the peer-reviewed literature regarding the use of an occluder during corneal refractive surgery to prevent cross-fixation during the ablation. PubMed searches using the background search terms "corneal refractive surgery", "LASIK" or "LASEK" yielded 28,079, 5740 and 838 search results, respectively. However, when the search terms of cross-fixation, eye shield, occluder or eye patch were combined with one of the three background search terms (with AND as the Boolean operator), not a single article concerning the use of an occluder to prevent cross-fixation was retrieved. This means that this standard clinical practice has never been studied in a formal fashion.

In the current study, patients (and their OR companions) perceived the paper occluder as cleaner because it is disposable, so a new one is used each time. In addition, the surgeon found the paper occluder to be easier to use because it is self-adhering and disposable, so it does not require cleaning between patients. However, patients found it easier to fixate & the surgeon judged their fixation as better when using the standard reusable plastic shield. This may be because it is more opaque than the translucent occluder, and also because it has a higher "dome" than the disposable patch, so patients didn't feel it with their lashes.

Conclusion

The ease and quality of fixation during laser vision correction procedures is paramount as it can affect ablation centration and refractive outcomes. When used for the occlusion of the non-operated eye during refractive surgery, the new disposable eye patch ("MASK-it") might have certain advantages in terms of appearance and ease of application. However, since in its current form it is not as effective in promoting the ease and quality of fixation as a standard reusable eye shield, the use of the disposable patch during refractive surgery procedures is not recommended. The manufacturers should consider modifying the product to have a higher dome and making it more opaque to improve its efficacy.

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Conflicts of interest

Authors declare that there is no conflict of interest.

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