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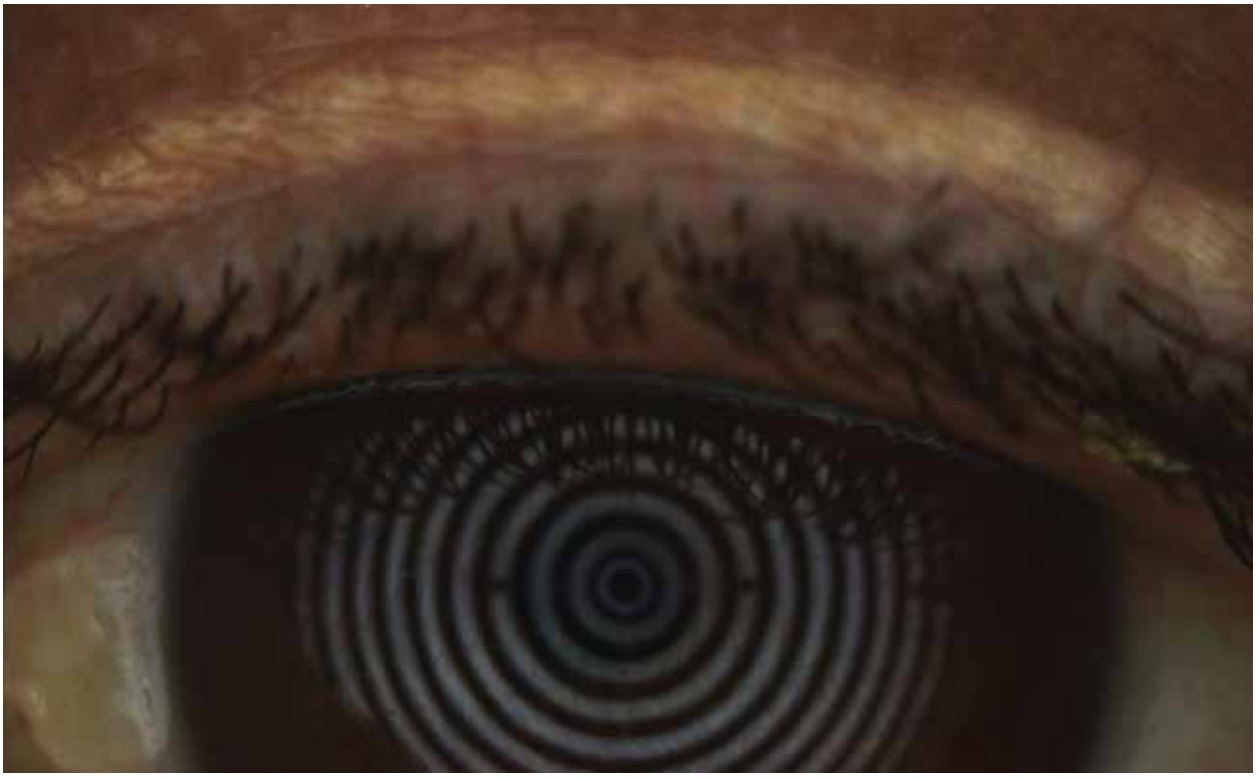

RESEARCH
My Tattoos Caused My Dry Eye?

RECHERCHE
Mes tatouages ont causé ma sécheresse oculaire?

RESEARCH
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I learned of the passing of Larry Alexander, OD as I was preparing to write this editorial. Dr. Alexander, a former Professor of Optometry at the University of Alabama School of Optometry, had a widely varied career in optometry, but is best known for his many contributions to continuing education for optometrists, including the three editions of his textbook Primary Care of the Posterior Segment. In the 45 years since he graduated from Indiana University School of Optometry, Alexander embraced technology in practice and lectured and wrote about it frequently.

I commented in a previous editorial about how technology has changed how we provide care for our patients every day. It is a huge challenge to keep up with these technological changes. More importantly, which new technology will really work AND will still be around in a few years? And is it worth the cost? To help you answer these questions, the CJO*RCO is starting a new continuing series of short articles on technology in optometric practice. The first instalment will appear in the next issue. I am very pleased to announce that the author of this series will be Dr. Paul Karpecki and welcome him to our team of continuing contributors.

B. Ralph Chou, MSc, OD, FAAO
Editor-in-Chief

J'ai appris le décès de Larry Alexander, OD, au moment où je me préparais à rédiger cet éditorial. Le Dr Alexander, un ancien professeur d'optométrie à l'École d'optométrie de l'Université de l'Alabama, a connu une carrière très diversifiée en optométrie, mais il est surtout connu pour ses nombreuses contributions à la formation continue des optométristes, notamment les trois éditions de son manuel Primary Care of the Posterior Segment. Au cours des 45 années écoulées depuis l'obtention de son diplôme à l'École d'optométrie de l'Université de l'Indiana, Alexander a adopté la technologie dans la pratique et il a maintes fois écrit et prononcé des conférences à ce sujet.

J'ai souligné dans un éditorial précédent comment la technologie avait modifié la façon dont nous prodiguons des soins à nos patients quotidiennement. Ces changements technologiques posent un défi de taille. Ce qu'il faut se demander surtout, c'est : quelles innovations technologiques fonctionneront réellement ET seront encore en usage dans quelques années? Et l'investissement en vaut il le coût? Pour vous aider à répondre à ces questions, le CJO*RCO lance une nouvelle série de courts articles sur la technologie dans la pratique de l'optométrie. Le premier de ces articles paraîtra dans le prochain numéro. Je suis très heureux d'annoncer que l'auteur de ces articles sera le Dr Paul Karpecki et je lui souhaite la bienvenue dans notre équipe de collaborateurs permanents.

B. Ralph Chou, M. Sc., O.D., F.A.A.O
Éditeur en chef

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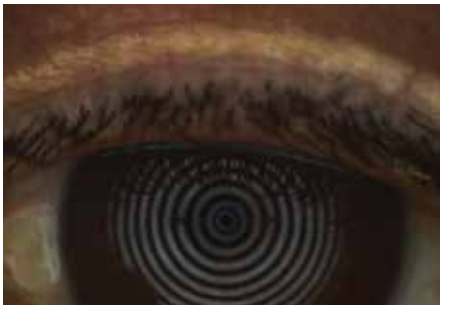

Tattooed eyeliner on upper eyelids.

My Tattoos Caused My Dry Eye?

A New Way To Look At Diagnosis And Treatment For Patients With Tattoo Eyeliner

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Abstract

Purpose: This case report describes the potential impact of tattooed eyeliner on eyelid structure and function resulting in an increase in dry eye symptoms and findings.

Case Report: A 59-year-old Hispanic female presented for an evaluation following longstanding dry eye symptoms with little relief from artificial tears. Imaging showed meibomian gland dropout, possibly a result of her tattooed eyeliner. Symptoms and objective measurements improved successfully with warm compresses, lid massage, and lipid-based artificial tears.

Conclusions. Permanent tattooed eyeliner may enhance dryness of the eyes in two main ways: disruption of the architecture of the lids and chronic inflammation from tattoo pigment granules. Recognizing these possible effects in patients with tattooed eyeliner may help tailor treatment to be specific to the etiology of the patient's dry eye: aiding the remaining meibomian glands by utilizing warm compresses, lid massage and supplementing the lipid from the missing meibomian glands by employing lipid-based artificial tears.

Introduction

Dry eye disease has a worldwide prevalence of between 5% and 34% of the population, and is divided into two etiology subgroups: aqueous-deficient, and hyper-evaporative.[1] Aqueous-deficient dry eye occurs when the lacrimal gland does not produce enough aqueous tears to lubricate the eye. This form only accounts for about 10% of dry eye. The more common form, and the etiology detailed in this case report, is hyper-evaporative. Hyper-evaporative dry eye results from the dysfunction of the meibomian glands under-secreting the lipid layer needed to maintain the aqueous tears on the eyes. Hyper-evaporative dry eye and mixed hyper-evaporative/aqueous-deficient forms account for about 80% of all forms of dry eye.

Case Report

A 59-year-old Hispanic female was referred by her primary eye care practitioner for a dry eye evaluation. She had longstanding symptoms of dryness, mild ocular itching associated with pollen allergies, and mild ocular burning. She reported tearing following extensive television or computer usage, although tears did not run down her checks. The duration of these symptoms was unknown. She had been using ketotifen ophthalmic drops twice a day (BID) and Systane Ultra artificial tears (Alcon Laboratories, Inc) BID in both eyes. She had never used warm compresses and had no history of compress recommendation. Permanent eyeliner had been placed on both upper (yellow ink) and lower lids (black ink) around 25 years ago although the lower lid liner was not visible because it dissolved when the patient used a skin bleaching cream. There is no history of contact lens wear. The patient had been diagnosed with type II diabetes for about 4 months with unknown sugar levels, and takes 3 Metformin 500 mg tablets by mouth BID.

Pertinent findings during her initial exam included a corrected visual acuity of 20/20 at both distance and near. On slit lamp examination, tattooed eyeliner was noted on the upper lids of both eyes (Figure 1). Mild meibomian gland dysfunction was found with capped gland orifices and turbid secretions on digital expression in both eyes (OU). Corneas showed superficial punctate staining with sodium fluorescein inferiorly OU. The practitioner measured tear break up time (TBUT) to be 2 seconds in each eye. Lissamine green dye stained only nasal and temporal pingueculae OU. Jones 1 Test, performed in response to her symptoms of tearing, demonstrated that the tear ducts and lacrimal drainage system were patent OU.

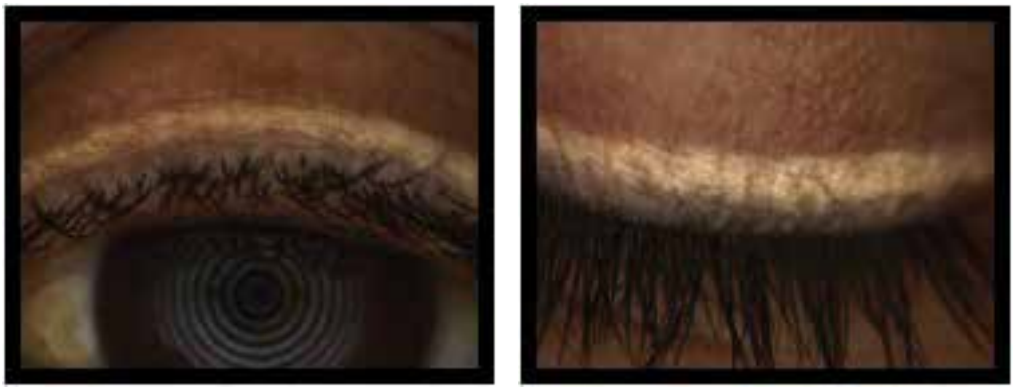

Figure 1. Tattooed eyeliner on upper eyelids.

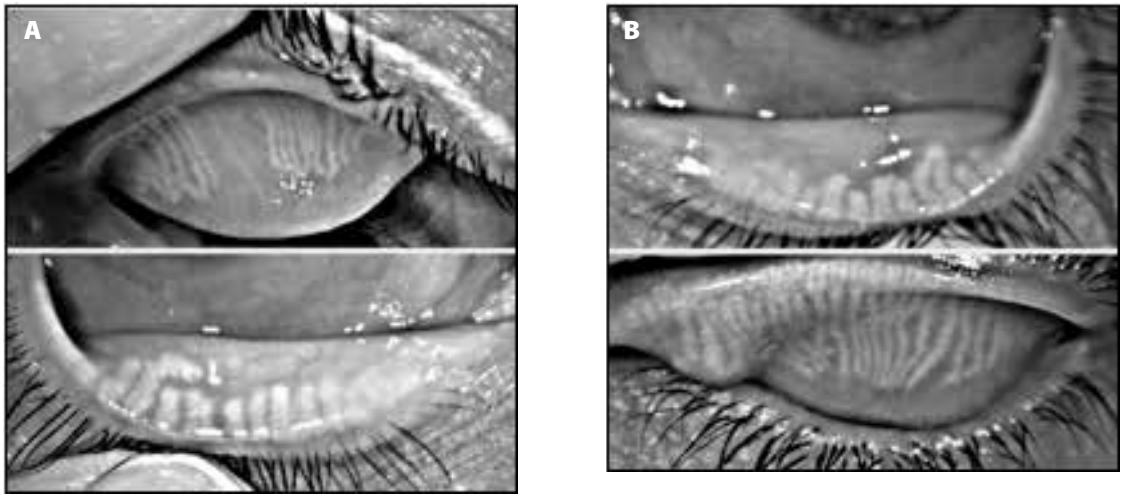

Figure 2. Oculus Keratograph 5M Meibomography (Oculus, Inc.) a) Right eye (OD) arrows pointing to meibomian gland drop out (upper lid) and shortening of the meibomian glands (lower lid).
b) Left eye (OS) arrows pointing to shortening of the meibomian glands (upper and lower lids).

An Oculus Keratograph 5M (Oculus, Inc.) was utilized to quantify dryness by measuring an objective TBUT. In the right eye, tear break up in the central cornea was 7.65 seconds and average across the entire cornea 16.55 seconds (Figure 3). Left eye showed central breakup 7.84 seconds and average across the entire cornea 15.05 seconds (Figure 4). Infrared meibomography images were acquired with the Keratograph, revealing the physical meibomian gland structure. The meibomian glands of the right eye showed a distinct area of meibomian gland drop-out in the upper lid with shortening of the remaining meibomian glands on both upper and lower lids. Imaging of the left eye also revealed shortening of the meibomian glands on both upper and lower lids (Figure 2).

Secondary to the findings, a diagnosis of Meibomian Gland Dysfunction was made. The tattooed eyeliner was suspected as being a contributing factor to the etiology of the condition. The first treatment strategy was to support the function of the remaining meibomian glands by adding warm compresses and lid massage 3 times a day in addition to increasing the use of Systane Ultra artificial tears from 2 to 4 times a day OU.

At a 2-week follow up visit, the patient reported that her symptoms of dryness and burning had decreased. She reported excellent compliance with all dry eye treatment measures. Quantitatively, the central corneal TBUT with the Keratograph 5M was increased in the right eye by 29.9% to 9.94 seconds. The left eye had an increased TBUT by 47.9% to 11.60 seconds.

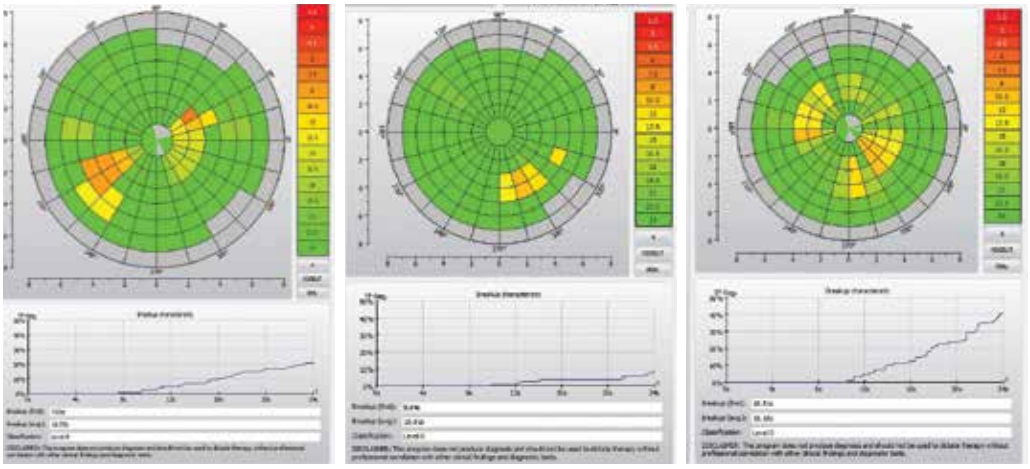

Figure 3. Oculus Keratograph Tear Break Up Time (Oculus, Inc.)
Right eye (left to right) Initial exam, Second Follow Up, Third Follow Up.

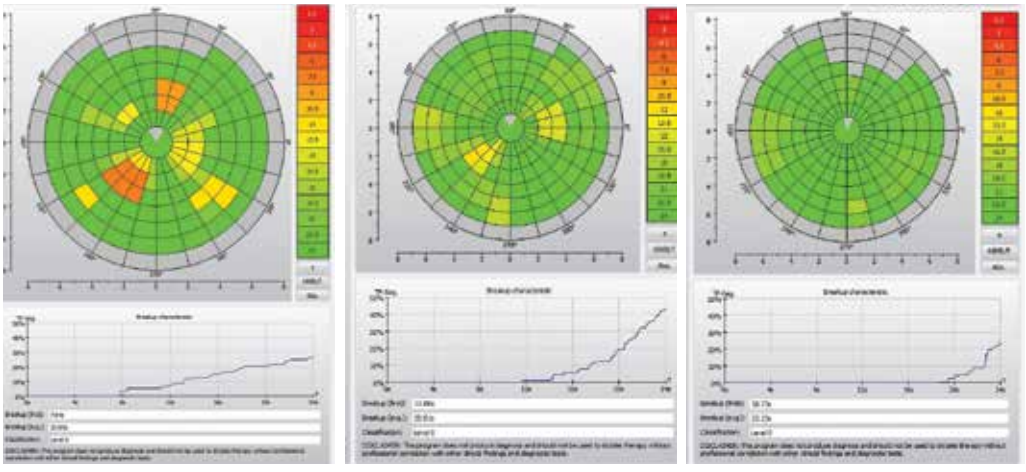

Figure 4. Oculus Keratograph Tear Break Up Time (Oculus, Inc.)
Left eye (left to right) Initial exam, Second Follow Up, Third Follow Up.

Practitioner examination of TBUT was improved from 2 to 3 seconds OU. Sodium fluorescein staining of the cornea and lissamine green staining of the conjunctiva was decreased OU.

To further supplement the lipid layer of the tears, the artificial tears were switched from Systane Ultra to Systane Balance (Alcon Laboratories, Inc). Systane Balance is a lipid-based artificial tear as opposed to Systane Ultra which is an aqueous-based artificial tear. One study reported that the usage of Systane Balance improved tear breakup time by 33% in 49 patients with meibomian gland dysfunction, as opposed to habitual dry eye therapy.[2]

Two months later, at the second follow-up examination, the patient reported increased relief with Systane Balance versus Systane Ultra. The TBUT measured by the Keratograph 5M improved from baseline by 34.7% (10.31 seconds) in the right eye and by 138.7% (18.72 seconds) in the left eye. Practitioner examination of TBUT showed increase from baseline from 2 to 5 seconds in the right eye and 2 to 7 seconds in the left eye. There was only a trace amount of superficial punctate staining inferiorly in the right eye and no staining in the left eye with sodium fluorescein. Lissamine green staining was unchanged from the first follow up appointment.

Based on her response to therapy, we confirmed our patient's diagnosis of Meibomian Gland Dysfunction in both eyes. She was educated that this would be an on-going condition requiring long-term management and instructed to continue her daily use of warm compresses and lid massage 3 times a day with Systane Balance artificial tears (Alcon Laboratories, Inc.) 4 times a day She was directed to return to clinic in six months for her annual comprehensive eye examination.

Discussion

Meibomian gland dysfunction (MGD) is characterized by terminal duct obstruction and qualitative and quantitative secretion changes of the meibomian glands.[3] In a patient with permanent tattooed eyeliner, it is theorized that the 2 main causes of increased dryness stem from the disruption of the architecture of the eyelids during the tattooing procedure and the body's resulting inflammatory reaction to the pigment molecules in the ink. With 42.4% of plastic surgeons offering the procedure of permanent makeup, it is important to keep the effects of the procedure on the lid in mind when seeing patients.[4]

The anatomy of the eyelid from anterior to posterior includes the epidermis, dermis, orbicularis muscle, and the tarsal plate. The meibomian glands are located in the tarsal plate and while the tattoo needle aims only to place the pigment in the anterior dermis, it is possible for the needle and the pigment to penetrate deeper than expected.[5] If the procedure is performed incorrectly, the needle depth may be deep enough to disturb the area where the meibomian glands are located. The inflammation induced by this type of trauma could result in gland damage with resulting shortening and dropout.[6,7] There have been reports of the tattoo needle going so deep as to lacerate the eyelid, placing tattoo ink in the bulbar conjunctiva.[6] These reports are further evidence that the architecture of the lid, including the meibomian glands can be affected by both the tattoo needle and pigment.

A second method by which tattooed eyeliner can exacerbate dry eye is through the reaction of ink particles with lid tissue which have the potential to cause a low grade chronic inflammation.[1] This inflammation can damage structures that produce the layers of the tear film such as the accessory lacrimal Glands of Wolfring and the meibomian glands. The Glands of Wolfring are located in the palpebral conjunctiva and similar to the main lacrimal glands, produce a secretion of electrolytes, fluid, and protein that lubricates the ocular surface.[8] The meibomian glands produce a lipid material that acts as a barrier to evaporation between the aqueous tears and the outside environment.[9]

The tattoo ink has been shown to contain carbon nanoparticles along with other additives and water.[10] These nanoparticles may induce reactive oxygen species in the skin causing inflammation. Histopathologic specimens taken from the eyelid after tattooing showed focal chronic inflammation without granulomas.[11] Histology also showed dermal fibroblasts laden with black granular pigment. Some of the chemicals in sample black ink include arsenic and P-phenylenediamine, which have been reported to cause reactions, specifically hypomelanosis in the skin. In the United States, the composition of tattoo ink is subject to the Food and Drug Administration regulation, although the practice of tattooing itself is not.[5] Therefore, many of the pigments used may not be approved for skin contact, and no pigment is approved for injection or implantation into the skin. When tattoo ink pigment is placed in one area, it is possible for the ink to have a spreading effect, infiltrating multiple layers of the eyelid.[12] Chemical changes, therefore, make take place in unintended tissues. Furthermore, allergic granulomatous reactions to ink particles can occur, presenting with tenderness, swelling, itching, and bumps.[13,14] One study conducted interviews of 92 patients with adverse reactions to permanent makeup procedures. Of these patients, 68% had unresolved reactions at the time of the interview (duration of symptoms ranging from 5.5 months to 3 years), showing possibility for chronicity of the inflammatory reaction.[13]

A recently published study directly linked tattooed eyeliner with meibomian gland loss and tear film instability.[3] The study involved 40 women, 10 with tattooed eyeliner, and 30 without (control group). The study proved statistically significant results for those with tattooed eyeliner having greater corneal erosion, lower tear secretion volume, lower TBUT, and greater meibomian gland loss.

In our patient, use of warm compresses and lid massage allowed the remaining functioning meibomian glands to increase secretion of the lipid layer of the tear film. Lipid-based artificial tears were added to supplement the lipid aspect of the meibum that the missing glands were unable to secrete. Both of these treatment measures provided the patient with a more stable tear film, a decrease in dry eye symptoms, and improved objective clinical measurements. It is possible that our patient would have had meibomian gland dysfunction and dry eye symptoms regardless of the tattooed eyeliner. However, even though the literature is limited, we cannot discount any contribution the tattooed eyeliner had with her meibomian gland loss. As it is a common procedure for women to undergo, it is important to take tattooed eyeliner and its potential effects on the meibomian glands into account when assessing the etiology of a patient's dry eye.

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Mes tatouages ont causé ma sécheresse oculaire?

Un nouveau regard sur le diagnostic et le traitement pour les patientes ayant un tatouage (maquillage permanent) de contour des yeux

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Résumé

But. Le présent rapport de cas décrit les répercussions potentielles d'un tatouage de contour des yeux sur la structure et le fonctionnement des paupières, soit des symptômes accrus de sécheresse oculaire et d'autres anomalies.

Rapport de cas. Une femme de 59 ans d'origine hispanique, aux prises depuis longtemps avec des symptômes de sécheresse oculaire peu soulagés par des larmes artificielles, a consulté pour une évaluation. Les examens d'imagerie ont révélé une perte de glandes de Meibomius, probablement causée par le tatouage de contour des yeux. L'application de compresses chaudes, le massage palpébral et l'utilisation de larmes artificielles à base de lipides ont permis d'atténuer les symptômes et d'améliorer les mesures objectives.

Conclusions. Un contour des yeux tatoué de façon permanente peut accroître la sécheresse oculaire par deux mécanismes principaux : perturbation de l'architecture des paupières et inflammation chronique due aux granules de pigments dans l'encre de tatouage. Reconnaître ces possibles effets chez les patientes ayant le contour des yeux tatoué peut aider à offrir un traitement adapté à l'étiologie de la sécheresse oculaire : stimuler les glandes de Meibomius restantes par des compresses chaudes et un massage palpébral, et utiliser des larmes artificielles à base de lipides pour pallier l'absence de sécrétion de lipides par les glandes de Meibomius qui manquent.

Introduction

La sécheresse oculaire touche de 5 % à 34 % (prévalence) de la population mondiale et se divise en deux sous-groupes, selon l'étiologie : par déficience aqueuse et par hyperévaporation[1]. La sécheresse oculaire par déficience aqueuse apparaît lorsque les glandes lacrymales ne produisent pas suffisamment de larmes aqueuses pour lubrifier l'œil. Elle ne représente qu'environ 10 % des cas de sécheresse oculaire. La forme la plus courante, qui fait l'objet de ce rapport de cas, est la sécheresse oculaire par hyperévaporation. Elle est due à un dysfonctionnement des glandes de Meibomius, lequel entraîne une sous-sécrétion de la couche lipidique nécessaire au maintien des larmes aqueuses sur les yeux. La forme hyperévaporation et les formes mixtes hyperévaporation et déficience aqueuse représentent environ 80 % des cas de sécheresse oculaire.

Rapport De Cas

Une femme hispanique de 59 ans a été adressée pour l'évaluation d'une sécheresse oculaire, à la demande de son professionnel de première ligne pour les soins de la vue. Elle avait des symptômes de sécheresse de longue date, un léger prurit oculaire associé à des allergies au pollen et des sensations de légères brûlures oculaires. Une période prolongée devant la télévision ou l'ordinateur provoquait un larmoiement, mais sans écoulement de larmes sur les joues. La durée des symptômes était inconnue. La patiente utilisait des gouttes ophtalmiques de kétotifène deux fois par jour et les larmes artificielles Systane Ultra (Alcon Laboratories, Inc), deux fois par jour dans les deux yeux. Elle n'avait jamais utilisé de compresses chaudes et n'avait jamais eu de recommandation en ce sens. Elle s'était fait appliquer un contour des yeux

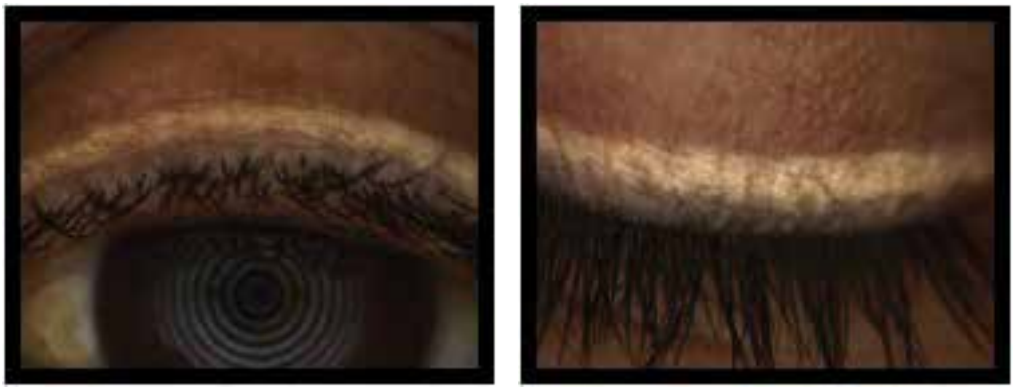

Figure 1. Contour des yeux tatoué sur les paupières supérieures

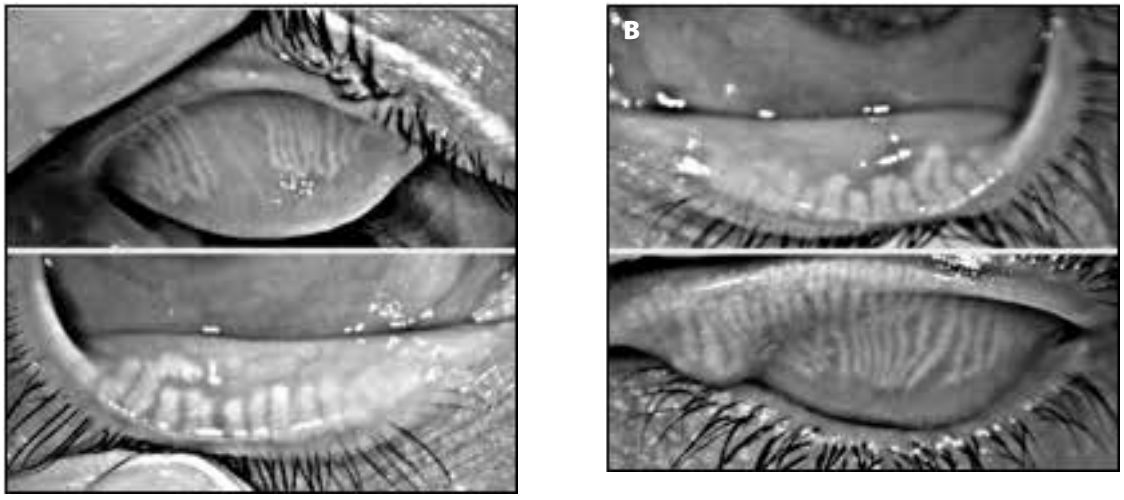

Figure 2. Meibographie prise avec un kératographe 5M d'Oculus (Oculus, Inc.).
a.) Œil droit : Les flèches indiquent une perte de glandes de Meibomius (paupière supérieure) et un raccourcissement des glandes de Meibomius (paupière inférieure).
b.) Œil gauche : Les flèches indiquent un raccourcissement des glandes de Meibomius (paupières supérieure et inférieure).

permanent sur les paupières supérieures (encre jaune) et inférieures (encre noire) quelque 25 ans plus tôt; celui des paupières inférieures n'était toutefois pas visible, s'étant dissous lorsqu'elle avait utilisé une crème blanchissante pour la peau. Elle n'avait jamais porté de lentilles cornéennes. Elle avait reçu un diagnostic de diabète de type 2 environ 4 mois auparavant, ne connaissait pas sa glycémie et prenait 3 comprimés de 500 mg de metformine par voie orale, deux fois par jour.

Au cours de l'examen initial, les observations pertinentes comprenaient une acuité visuelle corrigée de 20/20 à distance et de près. Pendant l'examen à la lampe à fentes, un contour des yeux tatoué a été noté sur la paupière supérieure des deux yeux (photo 1). Un léger dysfonctionnement des glandes de Meibomius a été détecté, accompagné de glandes aux orifices bouchés et de sécrétions turbides exprimées par pression digitale dans les deux yeux. La partie inférieure des deux cornées a pris une coloration ponctuée superficielle avec la fluorescéine sodique. Le temps de rupture du film lacrymal (TRFL) mesuré par le praticien a été de 2 secondes dans chaque œil. Le vert de lissamine s'est fixé seulement à des pinguéculas du côté temporal et nasal dans les deux yeux. Le test de Jones I, effectué en raison de ses symptômes de larmoiement, a démontré que les canaux lacrymaux et le système de drainage lacrymal étaient perméables dans les deux yeux.

Un kératographe 5M d'Oculus (Oculus, Inc.) a servi à quantifier la sécheresse oculaire par la mesure objective d'un TRFL. Dans l'œil droit, la valeur dans la zone centrale de la

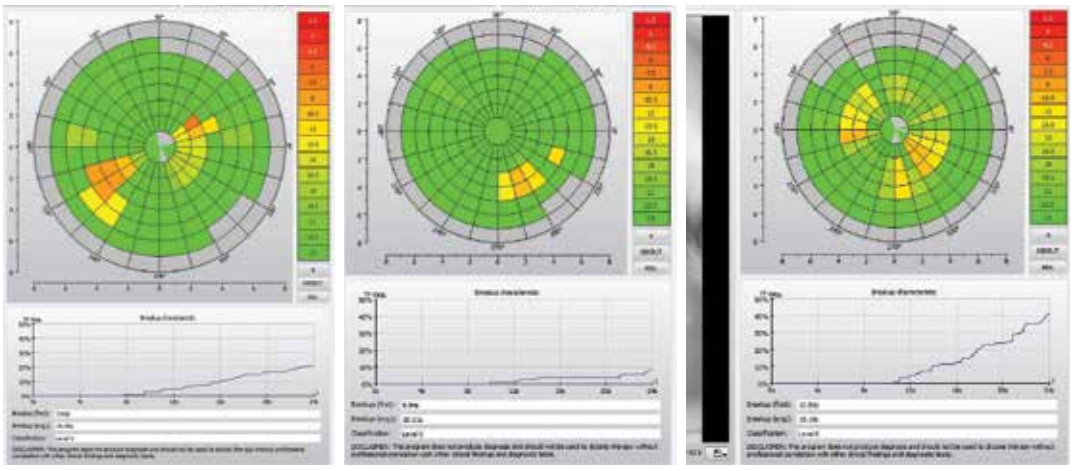

Figure 3. Temps de rupture du film lacrymal mesuré au kératographe (Oculus, Inc.).
Œil droit (de gauche à droite) : examen initial, deuxième examen de suivi, troisième examen de suivi.

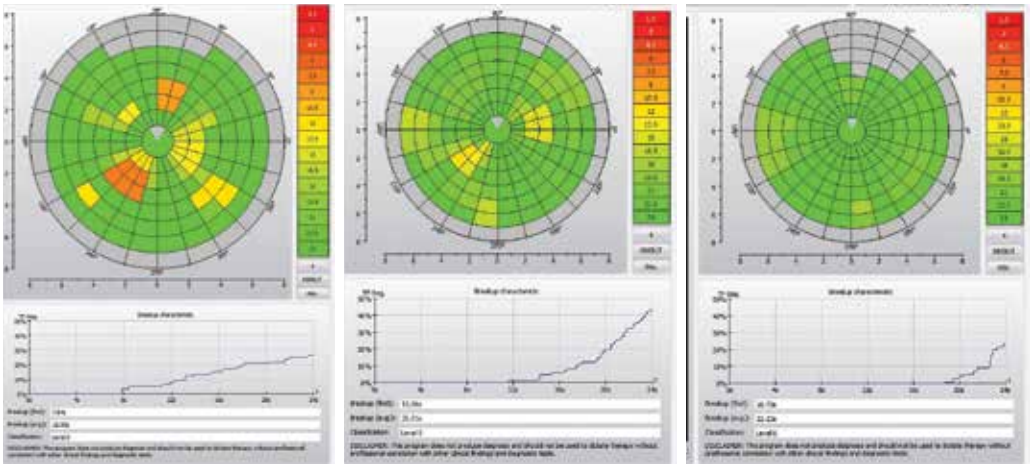

Figure 4. Temps de rupture du film lacrymal mesuré au kératographe (Oculus, Inc.).
Œil gauche (de gauche à droite) : examen initial, deuxième examen de suivi, troisième examen de suivi.

cornée a été de 7,65 secondes et la moyenne pour la cornée entière, de 16,55 secondes (photo 3). Dans l'œil gauche, la valeur dans la zone centrale de la cornée a été de 7,84 secondes et la moyenne pour la cornée entière, de 15,05 secondes (photo 4). La structure physique des glandes de Meibomius a été révélée par les images de meibographie infrarouge recueillies avec le kératographe. Les images de l'œil droit montraient une région distincte de perte des glandes de Meibomius dans la paupière supérieure, et un raccourcissement des glandes de Meibomius encore présentes sur les paupières supérieure et inférieure. Les images de l'œil gauche ont aussi mis en évidence un raccourcissement des glandes de Meibomius sur les paupières supérieure et inférieure (photo 2).

À la lumière des résultats, un diagnostic de dysfonctionnement des glandes de Meibomius a été posé. Le contour des yeux tatoué a été un facteur causal présumé dans l'étiologie de la maladie. La première stratégie de traitement a consisté à soutenir le fonctionnement des glandes de Meibomius restantes par l'ajout de compresses chaudes et d'un massage palpébral, trois fois par jour, et l'utilisation de larmes artificielles Systane Ultra quatre fois plutôt que deux fois par jour, dans chaque œil.

À une visite de suivi deux semaines plus tard, la patiente a indiqué que ses symptômes de sécheresse et les sensations de brûlure avaient diminué. Elle a dit avoir une excellente observance de toutes les mesures de traitement de la sécheresse oculaire. Quantitativement, le TRFL dans la zone centrale de

la cornée avec le kératographe 5M a augmenté de 29,9 % dans l'œil droit, passant à 9,94 secondes. Le TRFL dans l'œil gauche a été de 11,60 secondes, en hausse de 47,9 %. Le TRFL mesuré par le praticien a été amélioré de 2 à 3 secondes dans les deux yeux. La coloration de la cornée par la fluorescéine sodique et de la conjonctive par le vert de lissamine a été réduite dans les deux yeux.

Pour mieux rétablir la couche lipidique des larmes, il a été décidé de remplacer Systane Ultra, des larmes artificielles à base d'eau, par Systane Balance (Alcon Laboratories, Inc), des larmes artificielles à base de lipides. Une étude a montré que Systane Balance avait amélioré le TRFL de 33 % chez 49 patients atteints d'un dysfonctionnement des glandes de Meibomius, par rapport au traitement habituel de la sécheresse oculaire[2].

Deux mois plus tard, au deuxième examen de suivi, la patiente dit avoir obtenu un soulagement plus grand avec Systane Balance qu'avec Systane Ultra. Par rapport à sa valeur initiale, le TRFL mesuré avec le kératographe 5M s'est amélioré de 34,7 % (10,31 secondes) dans l'œil droit et de 138,7 % (18,72 secondes) dans l'œil gauche. À l'examen effectué par le praticien, l'augmentation du TRFL par rapport à la valeur initiale a été de 2 à 5 secondes dans l'œil droit et de 2 à 7 secondes dans l'œil gauche. Avec la fluorescéine sodique, la coloration ponctuée superficielle a été infime dans le bas de l'œil droit, et totalement absente dans le bas de l'œil gauche. La coloration par le vert de lissamine est restée la même que lors du premier rendez-vous de suivi.

La réponse au traitement a confirmé le diagnostic de dysfonctionnement des glandes de Meibomius dans les deux yeux. Notre patiente a été informée qu'il s'agissait d'une maladie chronique exigeant une prise en charge à long terme, et qu'il lui fallait continuer le traitement par des compresses chaudes et un massage palpébral, trois fois par jour, et par les larmes artificielles Systane Balance (Alcon Laboratories, Inc.), quatre fois par jour. On lui a demandé de revenir à la clinique six mois plus tard pour son examen annuel complet de la vue.

Discussion

Le dysfonctionnement des glandes de Meibomius se caractérise par une obstruction des canaux terminaux et par des changements qualitatifs et quantitatifs dans les sécrétions des glandes de Meibomius[3]. Chez une patiente ayant un contour des yeux tatoué de façon permanente, les deux principales causes d'une sécheresse oculaire accrue seraient, en théorie, la perturbation de l'architecture des paupières durant l'intervention de tatouage et la réaction inflammatoire du corps aux molécules de pigment contenues dans l'encre. Comme 42,4 % des chirurgiens plasticiens offrent l'intervention de maquillage permanent, il est important que les professionnels des soins de la vue tiennent compte des effets de celle-ci sur la paupière lorsqu'ils examinent des patientes[4].

L'anatomie de la paupière, de son bord antérieur à son extrémité postérieure, comprend l'épiderme, le derme, le muscle orbiculaire et la plaque tarsale. Les glandes de Meibomius se trouvent dans la plaque tarsale. L'aiguille de tatouage n'est censée placer le pigment que dans le derme antérieur, mais il est possible que l'aiguille et le pigment pénètrent plus profondément que prévu[5]. Si l'intervention n'est pas effectuée correctement, l'aiguille peut entrer assez loin pour perturber la zone qui contient les glandes de Meibomius. L'inflammation induite par ce type de trauma pourrait endommager les glandes, et ainsi les tronquer ou les atrophier[6,7]. Des rapports font état d'une aiguille de tatouage introduite assez profondément pour lacérer la paupière et placer l'encre de tatouage dans la conjonctive bulbaire[6]. Ces rapports constituent d'autres preuves que l'architecture de la paupière, dont les glandes de Meibomius, peut être altérée à la fois par l'aiguille de tatouage et par le pigment.

Un tatouage de contour des yeux peut exacerber la sécheresse oculaire par un deuxième mécanisme, soit la réaction des particules d'encre avec les tissus palpébraux, laquelle est susceptible de causer une légère inflammation chronique[1]. Cette inflammation peut abîmer les structures qui produisent les couches du film lacrymal, telles que les glandes lacrymales accessoires de Wolfring et les glandes de Meibomius. Les glandes de Wolfring, qui se trouvent dans la conjonctive palpébrale et ressemblent aux glandes lacrymales principales, sécrètent des électrolytes, des liquides et des protéines qui lubrifient la surface oculaire[8]. Les glandes de Meibomius produisent une substance lipidique qui agit comme une barrière à l'évaporation entre les larmes aqueuses et le milieu extérieur[9].

Il a été démontré que l'encre de tatouage renferme des nanoparticules de carbone ainsi que d'autres additifs et de l'eau[10]. Ces nanoparticules peuvent déclencher la formation, dans la peau, d'espèces réactives de l'oxygène qui causent l'inflammation. Une inflammation chronique focale, sans granulomes, a été notée au cours de l'analyse histopathologique d'échantillons prélevés sur la paupière après le tatouage[11]. Des fibroblastes dermiques chargés de pigment granulaire noir ont aussi été observés en histologie. Les composés chimiques présents dans un échantillon d'encre noire sont notamment l'arsenic et la p-phénylènediamine, pour lesquels des réactions ont été signalées, en particulier l'hypomélanose dans la peau.

Aux États-Unis, la composition de l'encre de tatouage est réglementée par la Food and Drug Administration, mais la pratique du tatouage comme telle ne l'est pas[5]. Par conséquent, bon nombre des pigments utilisés ne sont pas approuvés pour un contact avec la peau, et aucun pigment n'est approuvé pour une injection ou une implantation dans la peau. Lorsqu'un pigment d'encre de tatouage est placé à un endroit, il est possible que l'encre ait un effet d'étalement et s'infiltre dans plusieurs couches de la paupière[12]. Des changements chimiques risquent donc de survenir dans des tissus qui n'étaient pas visés. Par ailleurs, des réactions granulomateuses allergiques aux particules d'encre peuvent se manifester, sous forme de sensibilité, d'enflure, de démangeaisons et de bosses[13,14]. Les auteurs d'une étude ont réalisé des entrevues chez 92 patientes ayant eu des réactions indésirables à des interventions de maquillage permanent. Au moment de l'entrevue, 68 % de ces patientes présentaient des réactions non résolues (durée des symptômes allant de 5,5 mois à 3 ans), ce qui montre la possible chronicité de la réaction inflammatoire[13].

Selon une étude publiée récemment, un tatouage de contour des yeux est directement lié à une perte de glandes de Meibomius et à une instabilité du film lacrymal[3]. L'étude a été menée chez 40 femmes, 10 qui avaient un contour des yeux tatoué, et 30 qui n'en avaient pas (groupe témoin). Les résultats de l'étude, statistiquement significatifs, ont confirmé qu'un contour des yeux tatoué était associé à une érosion cornéenne plus étendue, à un volume de sécrétions lacrymales moindre, à un TRFL plus court et à une perte accrue de glandes de Meibomius.

Chez notre patiente, les compresses chaudes et le massage palpébral ont permis d'augmenter la sécrétion de la couche lipidique du film lacrymal par les glandes de Meibomius fonctionnelles qui restaient. Des larmes artificielles à base de lipides ont été ajoutées pour suppléer à l'aspect lipidique du meibum que les glandes manquantes ne pouvaient produire. Ces deux modalités de traitement ont rendu le film lacrymal plus stable, atténué les symptômes de sécheresse oculaire et amélioré les mesures cliniques objectives. Notre patiente aurait peut-être présenté un dysfonctionnement des glandes de Meibomius et des symptômes de sécheresse oculaire si elle n'avait pas eu le contour des yeux tatoué. Toutefois, bien que la littérature à ce sujet soit limitée, nous ne pouvons exclure un lien causal entre le contour des yeux tatoué et la perte de glandes de Meibomius dans son cas. Comme il s'agit d'une intervention courante chez les femmes, il est important de tenir compte du contour des yeux tatoué et de ses effets potentiels sur les glandes de Meibomius dans l'évaluation de l'étiologie de la sécheresse oculaire chez une patiente.

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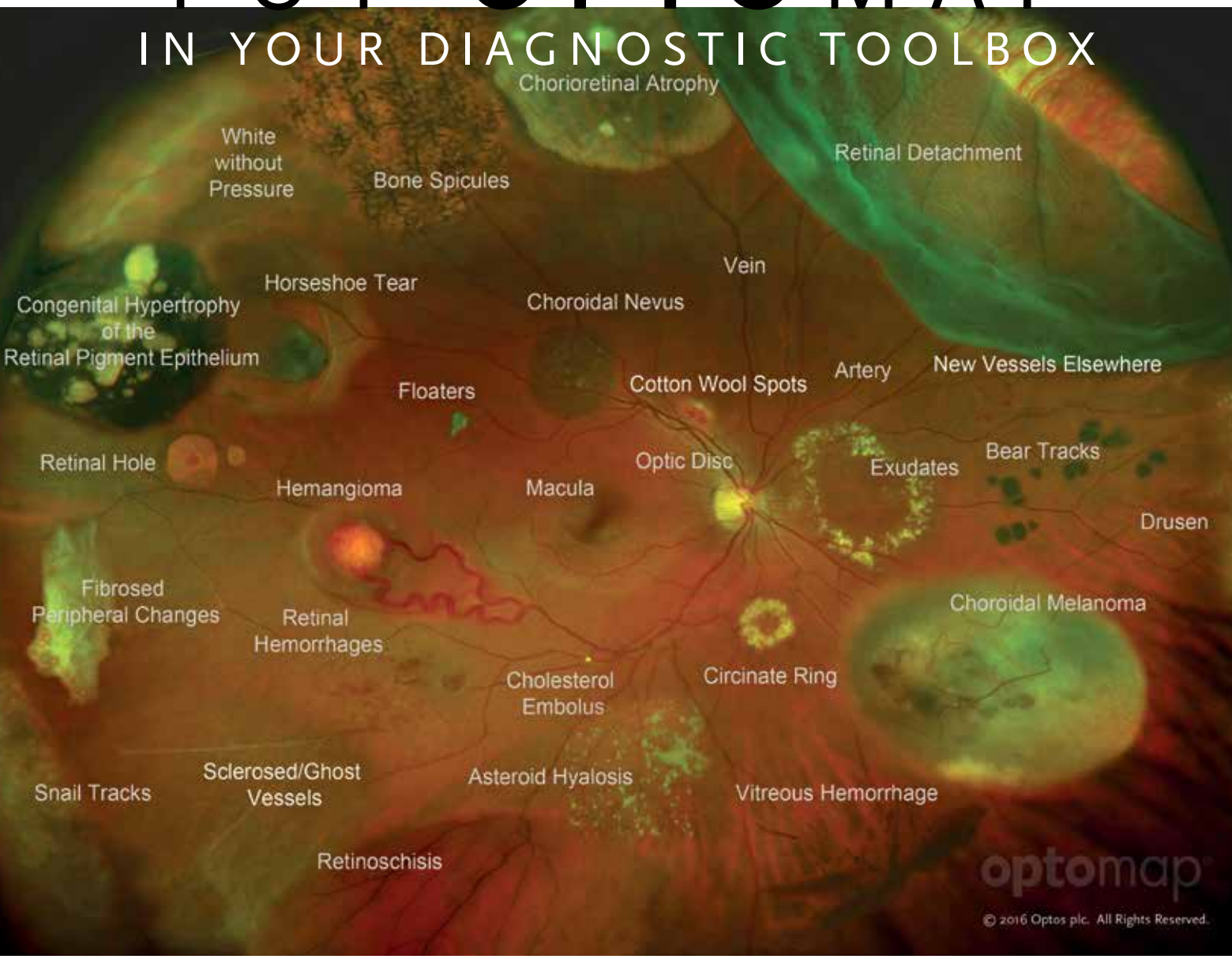

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Replacing Gas Permeable Lenses: The Benefit of a Professional in Office Dispense

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Introduction

Complications of contact lens wear have received considerable academic attention over the last several decades.[1] Several studies and case reports document many instances where patients suffered ocular complications secondary to wearing a contact lens acquired without a doctor's supervision or written prescription.[2,3] Such documented complications confirm the necessity of maintaining the need for a doctor's written contact lens prescription with an expiration date. An area that may need further investigation is what issues subjectively successful patients could encounter if they acquire new replacement contact lenses from a third party even with a valid prescription.

In response to patients' desire to purchase contact lenses at competitive prices from sellers other than their eye care practitioner, the US Congress passed the *Fairness to Contact Lens Consumers Act* (FCLA) in December of 2003 to provide "consumers with the greater ability to fill their contact lens prescriptions from sellers other than their prescribing eye care practitioner".[4] This law came into effect in February of 2004. Since then, all eye care practitioners in the United States have been required by law to release contact lens prescriptions to all patients once the fitting is completed. Exclusions are allowed as follows: 1) if contact lens wear is damaging to the patient's ocular health; 2) if the patient has a documented medical condition that requires closer professional supervision; and, 3) if the patient has not fulfilled their financial obligation with the practitioner on current services and materials. Released contact lens prescriptions are valid for 1 year following the examination date, and patients thereby have the option to liberally acquire replacement lenses directly from non-professional providers without professional in-office evaluations.

In a clinical setting, however, practitioners may note unanticipated complications during the dispensing of contact lenses. Such complications include (but are not limited to): lab errors, patient ocular change, dry eyes, poor lens wetting, as well as contact lens related complications such as giant papillary conjunctivitis, solution hypersensitivity and corneal neovascularization. During these office visits, moreover, doctors have the opportunity to diagnose both asymptomatic disease (ocular and systemic) as well as address any concerns the patient may express.

The purpose of our study is to examine complications that are encountered when replacement custom made lenses are dispensed in office. These complications might otherwise be unseen by the eye care practitioner if the contact lens had been provided to asymptomatic patients without professional dispensing. This study focuses on rigid contact lenses that are custom made for the patient (scleral or corneal lenses). Both custom and mass-produced soft (hydrogel, silicone hydrogel, and hybrid) contact lenses were not evaluated in this study.

Methods

A prospective cross-sectional study was performed to evaluate situations in which a custom-made replacement GP contact lens was ordered using a current prescription and dispensed to the patient in office. The data was collected at the Jules Stein Eye Institute of the David Geffen School of Medicine in the Contact Lens Service. This is a specialty lens service where the majority of the patients wear custom lenses. This practice is comprised of approximately 80% patients with irregular corneas, 15% normal refractive error, and 5% are aphakic. The patient base consists of patients referred to the Contact Lens Service from ophthalmologists and optometrists both within and outside of UCLA as well as student athletes.

UCLA IRB approval for this study was obtained. Patients were identified when a replacement GP lens was ordered and the patient, although asymptomatic, requested an in office dispense. Patients who wear mass-produced (e.g. soft) contact lenses, patients under the age of 18 years, and patients who declined to participate, were all excluded from the study. These lenses were all verified by a trained contact lens technician prior to the dispensing date. Stage One was

GP lens verification to determine if each ordered lens met ANSI standards (Figure 1). Once an ordered GP lens passed verification, Stage Two was dispensing the GP lens to the patient in office. A total of 3 different labs were used to order the lenses depending of type of lens. Keratoconic and post graft lenses were ordered from lab A, standard RGPs were ordered from lab B and sclerals were ordered from lab C.

Some lenses were rejected by the verifying technician before the dispensing appointment. The specific reason for the rejection was noted and then the "defective" lens was returned to the manufacturer and another lens ordered for the patient. A professional exam/visit was scheduled to dispense contact lenses that passed Stage One. At this dispensing visit, the ordered lens could also be found to be problematic by the patient or the dispensing optometrist even though it had previously passed the verification stage. The cause of lens rejections in office were determined through examination: a thorough patient history, including visual acuities and over-refractions, evaluation of both anterior and posterior segments, and evaluation of the contact lens mechanical fit and physiologic adaption.

A trained ophthalmic technician collected all data from lens verification. The data from the exam was collected by a licensed optometrist. If patients requested a spare set of CLs, only one lens of the pair was considered for each patient, the lens to be studied determined by random coin flip.

Results

Seventy patients who ordered custom GP lenses were enrolled in our study. The demographics of our cohort of patients consisted of: 25 females and 50 males between the ages of 18-95 years. The diagnoses of these 70 patients were distributed: 45(64.3%) had keratoconus; 9 (12.8%) were post-penetrating keratoplasty; 8 (11.4%) were myopic; 4 (5.7%) were aphakic; 2 (2.8%) each were diagnosed as corneal irregularity (both of these patients were post LASIK ectasia) and hyperopia.

Of the 70 lenses evaluated in this study, 8 failed verification by ANSI standards (11.4%) prior to the dispensing visit and were reordered (See Tables 1 and 2). Inaccurate contact lens optical power was the most common reason for such rejection (3/8 rejections). The other causes of rejection were: 1 instance of incorrect lens overall diameter, improper peripheral curve system as noted on invoice, a chip noted on edge of 1 lens, the incorrect material was used for the lens by the fabricating laboratory, or the optics were found to be quantitatively correct but qualitatively poor. Seven of these contact lenses were corneal rigid GP lenses, and 1 was a scleral gas permeable lens.

Figure 1. ANSI Standards: RGP Contact Lens Tolerances.[6]

Parameter	Tolerance
Diameter	+/-0.05mm
Optical zone diameters	+/-0.1mm
Base Curve Radius	+/-0.05mm
Power	
0 to +/-5.00D	+/-0.1mm
5.12 to +/-10.00D	+/-0.12D
10.12 to +/-15.00D	+/-0.18D
15.12 to +/-20.00D	+/-0.25D
>20D	+/-0.37D
Prism Power	
0-10 s	+/-0.50D
>10 s	+/-0.25D
Cylinder Power	
<2.00D	+/-.25D
2.00-4.00	+/-.37D
>4.00D	+/-.50D
Cylinder axis	
0-1.50DC	+/-5x
>1.50DC	+/-3x
Toric Base Curve Radii	
Back surface cylinder	
0-0.20mm	+/-.05mm
0.21-0.40mm	+/-.06mm
0.41-0.60mm	+/-.07mm
>0.06mm	+/-.09mm
Bifocal Add Power	+/-.25mm
Center Thickness	+/-.02mm

Table 1. Lens Rejections.

Lenses that failed verification inspection	8/70 (11.4%)
Lenses that were rejected during in office examination	14/70 (20.0%)

Table 2. Reasons for rejection during verification.

Wrong power	3
Wrong diameter	1
Edge Imperfection	1
Wrong peripheral curves	1
Wrong material	1
Poor optics	1

Table 3. Reasons for rejection during in office examination.

Power change	8
Base curve change	2
Non-wetting	1
Lens irritation	2

Of the 62 rigid GP contact lenses that passed verification, 14 later were deemed inappropriate for the patient not by fault of the manufacturing, rejected by either the patient or the practitioner. Change in patient's optical prescription was the most common reason for clinical rejection (8/14). Two lenses were reordered because the dispensing clinician found that a change in base curvature of the lens was needed to provide proper fit (keratoconus patients). Another 2 lenses failed because each of these lenses was deemed uncomfortable by the patient. An additional lens failed in office dispensing because the lens surface was found by the clinician to show poor wetting on the patient's eye (Table 3).

It should be noted that, of these 14 patients: 8 had keratoconus; 3 eyes were post penetrating keratoplasty; and 1 each were myopic, post-lasik ectasia, and graft vs. host disease (Table 4). Thirteen lenses were rigid GP corneal contact lenses while 1 was a scleral GP lens.

Of the 8 lenses that were rejected at the verification level, 5 lenses were ordered from lab A and 3 lenses were ordered from lab B. The labs were not randomized and the sample size was too small to prove clinical significance of which labs were used.

Discussion

Our study reports a rejection rate of 31.4% for custom rigid GP corneal and scleral contact lenses made to valid prescriptions. Most of these rejections (20%) occurred with the patient in the chair. These lenses therefore could have been worn by the patient for some time without detection of any problems. While some might deem this acceptable; it is, in our opinion, not ideal patient care. Some lens problems (e.g. damaged edge) might have resulted in a corneal abrasion or asthenopia (e.g. optical power errors). We believe it is important for eye care practitioners to educate their patients on potential problems that they may encounter if they purchase a custom made contact lens unsupervised by an eye care provider. On the same note, if contact lenses are directly shipped to the patient without verification, regardless of the source, the patient should be encouraged and alerted to be wary for potential problems that could occur (e.g. damaged edge, fit doesn't feel right, improper optical prescription).

Twenty percent (14/70) of our lens rejections occurred at the verifying technician level. In theory, all of these errors should have been detected by the manufacturing laboratory prior to the lens being sent to our practice, but they were not. Some of these might have been determined by an alternate non-professional provider if it is standard practice for such providers to verify lenses. The high lens rejection rate documented in this study, however, suggests to us that in-office lens verification is a valuable safety process during patient care.

This research cannot be easily extended to non-custom lenses, such as mass-manufactured soft lenses, but complications of such lenses have indeed been reported when patients decline to present for professional care at reasonable intervals.[1,4]

Our study is possibly biased because our clinic serves a large number of patients who have special needs, and complex contact lens prescriptions, and it would be reasonable that we might detect more complications. It would be interesting to see the results of this study performed over a more diverse and larger population with less complex lens prescriptions, but the authors, from our clinical experiences, doubt this rate would approach zero.

In conclusion, we believe it would be reasonable for clinicians to advise in-office dispensing for all patients who wear GP custom contact lenses, and perhaps for all custom made contact lenses of every type. At the very least, we believe that all contact lens wearing patients should be educated on the signs and symptoms of problems that can occur upon wearing any contact lens unsupervised by an eye care professional.

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Sulcoflex Piggyback Intraocular Lens Implantation For Correction Of Refractive Errors Following Cataract Surgery

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Abstract

Purpose: To investigate the visual and refractive outcomes following implantation of a Sulcoflex intraocular lens (IOL) to correct pseudophakic refractive error.

Methods: This retrospective chart review included 14 pseudophakic eyes of 13 patients who underwent implantation of a Sulcoflex IOL. The Sulcoflex IOL is a piggyback IOL technique where a secondary, supplementary lens is implanted in the ciliary sulcus.

Results: Eleven eyes (78.6%) had a postoperative SE within 0.50 D of the targeted SE. Preoperative UDVA was 20/30 in 4 eyes (28.6%), and 20/40 or worse in 10 eyes (71.4%). Postoperative UDVA was 20/30 or better in all eyes, where half (50.0%) of eyes were 20/20 or better. The mean preoperative logMAR (0.50 ± 0.33) significantly improved to 0.06 ± 0.09, $p<.01$. There were no complications.

Conclusions. The significant improvement in UDVA and the precision in reaching the target refraction suggest that the Sulcoflex is a viable and successful treatment option for pseudophakic refractive error.

Introduction

Although today's patients expect exact refractive results following cataract surgery, more than minimal residual refractive errors still occur in some cases.[1] Current surgical treatment options for correction of pseudophakic residual refractive error include: intraocular exchange (IOL) exchange, laser refractive surgery, and implantation of a piggyback IOL.[1,2,3] The piggyback technique has classically consisted of the implantation of a secondary, supplementary IOL in the sulcus or in the capsular bag anterior to the primary IOL.[4,5] Recently, piggyback IOLs, such as the Sulcoflex (Rayner Intraocular Lenses Ltd.), have been specifically designed for implantation in the ciliary sulcus.

Removing the primary IOL can increase the risk of incurring capsular tears and zonular damage, IOL exchange is a procedure that is best performed during the early postoperative period before capsular bag fibrosis and adhesions occur.[2,3] Unlike IOL exchange, the piggyback technique can be safely performed at any time after cataract surgery.[6,7] Piggyback IOLs also show good predictability and accuracy because the IOL power can be calculated without knowing the cause of the residual refractive error.[1,2] Although laser refractive surgery is commonly used to enhance pseudophakic refraction, it is best performed in patients with normal corneal topography and a stable refractive error.[8] Piggyback IOLs are an excellent treatment option for patients who are not suitable candidates for laser treatment, such as those with high refractive error, a history of radial or astigmatic keratotomy, as well as those with corneal pathologies not amenable to refractive surgery.[8,9] The piggyback lens is also seen as an attractive alternative to laser treatment, as it is reversible and avoids the significant corneal healing that follows excimer laser ablation.[1,9]

The Sulcoflex lens was the first anterior chamber piggyback IOL commercially available for the correction of both spherical and astigmatic refractive errors, and can provide patients with near or distance vision.[4,10] In addition, Sulcoflex zonal refractive multifocal IOLs are available for the correction of presbyopia so as to provide patients freedom from spectacles.[11,12] The purpose of this study was to investigate the safety and visual and refractive outcomes following implantation of the Sulcoflex lens to correct pseudophakic residual refractive error after routine cataract surgery.

Methods

Study Design and Sample Recruitment

This retrospective case series investigated the outcomes of patients who received implantation of a Sulcoflex IOL to correct residual refractive error following cataract surgery. This study included 14 pseudophakic eyes of 13 patients that received implantation of either a Sulcoflex aspheric IOL (Rayner 653L) or a Sulcoflex toric IOL (Rayner 653T) in the ciliary sulcus between October 2011 and June 2014 at the Gimbel Eye Centre in Calgary, Alberta. Patients with previous radial or astigmatic keratotomy were excluded due to possible diurnal visual fluctuations affecting the refractive outcome assessment. Patients who received implantation of Sulcoflex Multifocal IOLs were also excluded, as the scope of this study was limited to refractive outcome only. Data including target refraction, preoperative refraction and uncorrected distance visual acuity (UDVA) were collected. Postoperative refraction and UDVA data were collected at least 1 month after Sulcoflex implantation to ensure stability of visual outcomes. All participants provided informed consent for the surgical procedure, data collection and the establishment of a database.

IOL Model Selection and Power Calculations

The Sulcoflex is the first commercially available IOL specifically designed for secondary implantation in the ciliary sulcus.[13] It is a one-piece hydrophilic acrylic IOL that is 14mm in haptic diameter and 6.5mm in optic diameter.[14] The anterior convex and posterior concave lens configuration allow for adequate space between both IOLs, while its undulating haptics with 10° of angulation allow for adequate uveal clearance.[10,13] The Sulcoflex IOL is currently manufactured in aspheric, toric, and multifocal models. The Rayner 653L lens power is available from -10.00 to +10.00 D, and the Rayner 653T ranges from -7.00 to +7.00 D with cylinders between +1.00 to +6.00 D.[14] The Sulcoflex is not yet approved in Canada and was obtained with Health Canada approval. IOL types were selected based on the individual's refraction, lifestyle and needs. The IOL power and alignment was determined using Rayner's online IOL power calculator (Raytrace).

Surgical Technique

One surgeon, Dr. Howard Gimbel, performed all surgeries under topical and intracameral anesthetic. Eye-dependent incisions were made at variable meridians so as not to surgically induce or worsen pre-existing astigmatism. Sulcoflex IOLs were placed in the ciliary sulcus using the supplied injector. Good IOL centration was ensured. Toric IOLs were rotated into position by exact alignment of the reference marks on the toric IOL with corneal axis marks that were made prior to surgery. The wounds were watertight requiring no sutures. Patients were taken to the recovery room, and discharged when stable. Patients were instructed on postoperative ophthalmic medications.

Statistical Analysis

Mean, standard deviation, frequency, and percentage were used for descriptive statistics. For visual acuity evaluation, Snellen scale values were converted to logMAR notation. The Student paired t-test was used to compare preoperative and postoperative UDVA. The paired *t*-test was also used to compare the preoperative spectacle corrected distance visual acuity (SCDVA) with the postoperative UDVA, as a reference indicator to the efficacy of the Sulcoflex lens implantation. *P*-values less than 0.05 were considered statistically significant. Statistical analyses were conducted using SPSS version 21.

Results

This study included 7 women and 6 men of mean age 64 years (range 49 to 82 years). Table 1 shows patient demographics, as well as the type and power of the implanted Sulcoflex IOL. Of 8 aspheric and 6 toric IOLs, the mean IOL power was -0.36 D ± 3.93 (range -9.00 to +5.00 D). The time between primary surgery and Sulcoflex implantation was less than 1 year in 8 eyes (57.1%), between 1 and 5 years in 3 eyes (21.4%), and over 5 years in 3 eyes (21.4%), ranging from 7 months to 18 years. Postoperative follow-up visits ranged from 1.2 months to 14.6 months after surgery.

The mean spherical equivalent (SE) decreased from 0.16 D ± 2.54 (range -5.13 to +3.00 D) preoperatively to -0.28 D ± 0.60 (range -1.00 to +1.38 D) postoperatively. The mean target SE was -0.15 D ± 0.21 (range -0.50 to 0.00 D). The postoperative SE was within 0.25 D of the targeted SE in 7 eyes (50.0%), 0.50 D in 11 eyes (78.6%), 0.75 D in 13 eyes (92.9%), and had a greater than 1.00 D difference in 1 eye (7.1%).

Table 1. Patient demographics and Sulcoflex intraocular lens (IOL) selection.

Eye	Age (Y)	Gender	IOL Type	IOL Power (D)	Time between primary and secondary surgery (years)
1	52	F	RAY653T	+0.50	0.85
2	69	M	RAY653L	+3.00	0.70
3	65	M	RAY653L	+2.50	0.81
4	56	F	RAY653L	+2.50	1.73
5	68	F	RAY653L	+3.00	0.76
6	65	M	RAY653L	+2.50	0.81
7	73	F	RAY653L	-2.00	1.30
8	75	F	RAY653L	-5.00	8.38
9	49	M	RAY653T	-4.50	0.63
10	82	F	RAY653L	+5.00	18.02
11	75	F	RAY653T	-1.00	0.94
12	53	M	RAY653T	+0.50	1.79
13	62	M	RAY653T	-3.00	0.55
14	58	M	RAY653T	-9.00	11.55

Table 2. Patient preoperative and postoperative refraction.

Eye	Preoperative Refraction	Postoperative Refraction
1	+3.25 -0.50 x 67	-0.75 -0.25 x 66
2	+2.25 -0.50 x 158	0.00 -0.25 x 180
3	+2.25 0.00 x 0	plano
4	+2.00 -0.25 x 74	0.00 -0.50 x 15
5	+2.00 -0.25 x 30	+0.25 -0.25 x 50
6	+1.50 -0.25 x 146	-0.25 -0.50 x 100
7	-1.25 -1.25 x 85	-0.25 -0.25 x 65
8	-4.25 -0.75 x 52	+0.50 -1.00 x 75
9	+2.50 -2.00 x 165	+0.75 -0.50 x 133
10	+1.25 -1.00 x 67	+0.25 -0.25 x 55
11	+1.25 -2.25 x 95	-0.50 -0.50 x 48
12	+1.00 -0.50 x 50	-0.50 -0.25 x 171
13	-1.00 -1.25 x 124	+1.75 -0.75 x 89
14	-3.25 -3.75 x 4	-0.25 -0.25 x 90

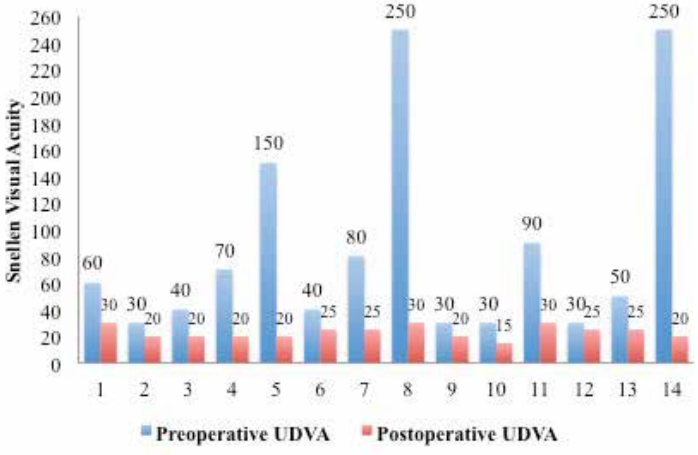
Table 3. Targeted spherical equivalent and postoperative spherical equivalent by patient, in diopters (D).

Eye	Targeted spherical equivalent	Postoperative spherical equivalent	Difference between Targeted and Postoperative SE
1	-0.25	-0.88	-0.63
2	-0.10	-0.13	-0.03
3	-0.50	0.00	+0.50
4	0.00	-0.25	-0.25
5	0.00	0.13	+0.13
6	-0.50	-0.50	0.00
7	0.00	-0.38	-0.38
8	0.00	0.00	0.00
9	-0.50	-0.50	0.00
10	0.00	0.13	+0.13
11	-0.25	-0.75	-0.50
12	0.00	-0.63	-0.63
13	0.00	+1.38	+1.38
14	0.00	-0.38	-0.38

Table 4. The frequency of eyes whose postoperative spherical equivalent within range from the targeted spherical equivalent.

Range from targeted SE	Number of eyes (*n*=14)
±0.25 D	7 (50.0%)
±0.50 D	11 (78.6%)
±0.75 D	13 (92.9%)
> 1.00 D	1 (7.1%)

Figure 1. Patient preoperative and postoperative uncorrected distance visual acuity (UDVA).



As shown in Table 2, the preoperative UDVA was 20/30 in 4 eyes (28.6%), 20/40 in 2 eyes (14.3%), and was worse than 20/40 in 8 eyes (57.1%). The postoperative UDVA was 20/20 or better in 7 eyes (50.0%), 20/25 in 4 eyes (28.6%) and 20/30 in 3 eyes (21.4%). All patients had improved UDVA postoperatively. (Figure 1) The mean UDVA significantly improved from 0.50 ± 0.33 logMAR preoperatively to 0.06 ± 0.09 logMAR postoperatively, $p<.01$. There was no significant difference found when comparing the preoperative SCDVA (0.05 ± 0.12 logMAR) with the postoperative UDVA (0.06 ± 0.09 logMAR), $p>0.05$.

No intraoperative or postoperative complications occurred in any case. There were no signs of pigment dispersion, Elschnig pearl formation, or interlenticular opacification observed during follow-up. Rotational stability and centration were excellent in all but one toric IOL case, which required a lens rotation 4 months postoperatively. After secondary surgery, the patient's vision stabilized at 20/20. Postoperatively, two eyes had a neodymium-doped yttrium aluminum garnet (Nd:YAG) laser capsulotomy for posterior capsular opacification. These capsulotomies were safely and successfully performed through both the Sulcoflex and the primary IOL.

One eye had a +1.38 D difference between the target SE and the postoperative SE. The refraction was +0.50 sphere one day postoperatively, however, by 6 months the refraction had gradually drifted more hyperopic. It is believed that the primary IOL had shifted in position due to capsular contraction, since a shift in the original +30.0 D lens would cause a greater change in refraction than the -3.00 D Sulcoflex lens. Upon further examination, it was found that the Sulcoflex IOL did have some rotation. However, the rotation does not have a great effect on the refraction, and is only an interesting coincidence.

Discussion

The findings of our study suggest that piggyback IOL implantation in the ciliary sulcus is a safe and viable option for the treatment of pseudophakic refractive error.

Similar to our findings, a study in the United Kingdom found a significant improvement in the spherical equivalent and uncorrected distance visual acuity after Sulcoflex implantation.[15] In a sample of 15 eyes, all eyes had achieved a postoperative UDVA of 20/32 or better within 3 months with 10 (67%) eyes achieving 20/20 or better. Falzon et al[15] also found that 14 (93%) eyes of were within 0.5 D of the target refraction. Our study findings contribute to the current evidence regarding the efficacy of the Sulcoflex IOL to enhance refractive outcomes and reduce spectacle dependence for distance vision in pseudophakic eyes.

In our study, the postoperative spectacle corrected distance visual acuity was found to be comparable to postoperative distance visual acuity, which also suggests that the Sulcoflex IOL is an effective way to provide cataract patients freedom from spectacles. Given the treatment options available, some patients may choose to wear spectacles over receiving the secondary surgery. However, pseudophakic patients with anisometropia or significant residual ametropia would benefit from this procedure. Depending on the patient's demands for near and intermediate tasks, some patients may still require reading spectacles. The Sulcoflex IOL can be safely implanted after a long-term postoperative period, and as early as 3 months after primary cataract surgery if the refraction is deemed stable.

Although the Sulcoflex piggyback IOL appears to be a more predictable and safer option than the IOL exchange procedure, a past concern with the classic implantation of piggyback IOLs in the capsular bag was the possible formation of interlenticular opacification (ILO).[16,17] ILO is opacification that occurs

between the opposing lens surfaces and is a complication that can cause a significant decrease in vision as well as a possible hyperopic shift.[17] Studies have demonstrated that implanting the piggyback lens in the ciliary sulcus instead of in the bag has been shown to reduce the risk of central optic touch.[13] Since the development of lenses specifically designed for safe placement in the ciliary sulcus, the piggyback technique has regained attention for pseudophakic patients seeking to correct residual refractive errors. Although several different piggyback IOLs have been used, IOLs specifically designed for sulcus fixation, such as the Sulcoflex IOL are recommended. The round and smooth optic and haptic edges of the Sulcoflex lens reduce the risk of complications associated with single-piece IOLs with square, thick edges, such as pigmentary dispersion.[4] There are also other alternative, commercially available piggyback IOL options designed for sulcus-placement, such as the Add-On (HumanOptics) and the 1st Add-On (1st Q Deutschland GmbH & Co.) IOLs.

The small sample size should be considered when interpreting the findings of this study. More studies are needed confirm the reliability and efficacy of this novel approach to correcting pseudophakic refractive error. A much larger sample could increase the statistical power as well as adjust for factors such as sociodemographic characteristics, IOL type and power, as well as the degree of residua ametropia. Further studies are also necessary to better understand the long-term outcomes of Sulcoflex IOL implantation.

In conclusion, the findings of our study suggest that the Sulcoflex piggyback IOL is an effective treatment option for refractive errors or enhancement of postsurgical results, and can provide cataract patients freedom from spectacles many years after cataract surgery.

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What to Consider When Selling or Buying Your Practice

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Pauline consults optometrists on recalling and other elements of practice management. She has worked on the business side of optometry for over two decades, and is highly sought after for her results-based strategies. Through her private consultations, conference presentations and regular columns in the Canadian Journal of Optometry, Pauline reaches optometrists and their teams across North America with her thought-provoking, engaging and inspiring insights. For more information, visit paulineblachford.com.

When consulting an optometry practice, my focus is always on increasing cash flow. Increasing cash flow affords business owners more opportunities in running and expanding their practice and, when practice owners focus on improving their bottom line, they end up providing better service to patients and engaging their staff more deeply. Importantly, the greater a practice's cash flow, the higher the practice's sale price when the owner decides to sell.

Dr. Toby Vallance sold two clinics in Calgary in 2013 after he and his family decided to move to Victoria. Instead of winding down his hours or cutting costs on business development and modernization prior to selling, he ramped them up. "The extra time and money that I put into my practice leading up to selling came back to me several times over in the sale price," Dr. Toby told me.

While important, cash flow is not the only factor that influences sale price. To find out some of the other more subtle factors, I surveyed a number of optometrists who have recently sold their clinics. I also spoke with Timothy A. Brown, President and CEO of ROI Corporation Brokerage.

ROI has provided health professionals with appraisal, brokerage and consulting services since 1974. From his decades of experience in the field, here are five recommendations Tim makes to all of his optometry clients.

As business owners you need to secure premises for long-term use

Approximately 98 per cent of suitable commercial space is only available for lease and not for purchase.[1] This is one of the reasons many optometry practice owners are renting the location of their business. While leasing has its advantages, it can also come with a variety of terms and conditions meant to protect the landlord, not the lessor.

Tim advises business owners – and their lawyer or property professional – to review a lease or lease renewal for clauses related to demolition, sale of property and tenant relocation which could disrupt your business. Depending on the lease, your location may not be part of the business you sell when it comes time to do so, a fact that can severely impair the value of your practice.

Securing your premises can also mean purchasing commercial space. Dr. Alain Desjardins owned the building in which he practised in New Brunswick, and says it was an "ideal scenario" from an investment perspective: "Any money you tie up in renovations or leasehold improvements can put you at high risk of having the owner increase your rent under the assumption that you have no choice but to stay, due to how much you've invested," he explained.

Dr. Alain also added that owning your space gives you the option of selling the practice with or without the building. Other benefits of owning your own space include paying down equity rather than paying rent, and removing landlord hassles. However, depending on where you can find a location to purchase, you may have to consider sacrificing location and moving away from a space that may be convenient to patients.[2]

Ensure all your employees have written contracts

Tim says that a practice for sale with properly written employee contracts will always yield a higher value than one without, because contracts mitigate the purchaser's risk in the advent of future termination. Without properly written employment contracts, and in the event of a termination, an employment lawyer could argue that a business owner is liable for one to two years of earnings. That's a big risk for a potential purchaser to take on, and according to Tim, it's a liability that regularly has purchasers and their advisors concerned.

Employment contracts do not eliminate employees' rights, but they generally reduce termination costs to within Canadian employment standards guidelines – which are significantly less than one to two years' salary.

Your associates should have contracts too

Buying a practice that has associates who are not on contract is concerning for purchasers and their lawyers because of the risk of the associate leaving post-sale and soliciting patients and staff. Also, Canadian banks frequently demand proper contracts as a condition of financing because associates and partners on contract reduce loan risk. For these reasons, a practice with proper associate and partnership contracts will sell for more than one without.

As part of the sale contract, you may agree to stay on and provide your optometry services for a certain number of years, post-sale. This can be a great asset to the purchaser and thereby increase the price you are able to negotiate for your practice. If agreeing to such an arrangement, however, Dr. Alain says to be sure that you enter into a contract that outlines your obligations and guarantees your interests moving forward.

Breakdown, clean-up and champion your performance data

Presentation at the time of sale is your chance to make a strong first impression that showcases the opportunities made available by your business. Tim says that the proper breakdown of revenue sources is crucial, because a lack of performance data will impress neither the purchaser nor their banker.

One element of this performance data which is often overlooked is documentation regarding the services that you and your team have referred out. If 10 per cent of patients are asking for a certain service that your practice refers out – eyewear sales, or pre- or post-surgery care, for example – a record of these statistics will demonstrate value to a buying optometrist who might like to provide those services in-house.

Tim also says buyers want to know what type of recalling system is in place, and its success rate. In Tim's experience, 20-40 per cent of patient databases include patients who are overdue for their eye health exams. Savvy purchasers will try and purchase these practices for a low price and then capitalize on the seller's missed opportunity by recalling the overdue patients.

I recommend practice owners implement a rigorous recalling strategy as early as possible so that it's you who benefits from this opportunity, rather than the purchaser. Such a strategy increases your bookings and cash flow, plus it ensures that your patient information is up to date. Your database is your golden goose: it's the greatest asset the clinic possesses, and it's what the buyer is purchasing.

Get your corporate structure in order

Making sure your corporate structure is in order is also known as "calling your accountant and business lawyer," according to Tim. This applies to clarifying your real estate holdings, resolving your responsibilities to your shareholders, having an accurate balance sheet, identifying items that will not be sold with the practice, removing personal assets from the corporation (and the tax implications of doing so), handling redundant assets – assets that generate income but aren't tied to the fundamental operations of your business[3] – and a variety of other accounting and legal nuances that will come under scrutiny at the time of sale.

When it came time for Dr. Barry Simpson to sell Timmins Family Eyecare, he had professionals review everything. In fact, he said his "lawyer and accountant were invaluable." Whether for business advisory services, accounting and record-keeping, tax advice or auditing, a call to an accountant and business lawyer you trust is a strong first step, whether you're considering a sale now, or in the future.[4]

Even if you aren't ready to sell, be ready to sell

You may not yet be thinking of selling your clinic, but the above recommendations are great practices to adopt so that you are ready to sell when the time is right. The more time you have to prepare for a sale is to your benefit: it is typical for potential buyers to ask for three consecutive years of accountant-prepared financial statements. If a business owner can reduce all of their costs over this fiscal period, these statements will show a higher profit margin, which is attractive to prospective buyers. Finally, should you ever decide to purchase a practice, the advice and recommendations above should provide you with factors to consider when looking at investment opportunities.

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Doing Site Selection Even if You Don't Want to Move and Attracting Customers to Your New Location

By Jeff Grandfield and Dale Willerton – The Lease Coach

Dale Willerton is the founder of The Lease Coach and Jeff Grandfield recently joined him as partner. Dale and Jeff are commercial lease consultants who work exclusively for tenants, and are also professional speakers and co-authors of Negotiating Commercial Leases and Renewals For Dummies. *Got a leasing question? Need help with your new lease or renewal?*

Call 1-800-738-9202, email DaleWillerton@TheLeaseCoach.com, or visit www.TheLeaseCoach.com. For a copy of our free CD, Leasing Dos & Don'ts for Commercial Tenants, please email your request to DaleWillerton@TheLeaseCoach.com.

Just one important message we share in our new book, *Negotiating Commercial Leases & Renewals FOR DUMMIES* (Wiley, 2013) is the value of conducting site selection prior to negotiating a lease renewal. Typically, many years have gone by since you last looked at available commercial properties and it's time to do that again. The reason that so many optometry tenants resist doing this homework is they say that they don't have the time, or there isn't any good space for lease near them or they don't plan to move anyway, so why waste time looking at other locations?

What if we told you that two of your closest competitors were going to close out of business, move, expand, downsize or were struggling to stay open? Would this information change your lease renewal plans? Of course it would. What if you learned that a new competitor was coming into the neighbourhood? If your rent is going up and your sales are going down, that affects your decision-making process about a lease renewal.

Timing is critical when you request lease proposals from landlords and their listing agents. Ideally, The Lease Coach does all of your site selection at once and receives multiple proposals all within a few days, including any renewal proposal from your landlord. This allows us to compare the deals on paper side-by-side. Sometimes, a landlord's real estate agent sends a casual e-mail proposal, which is not as effective as a full proposal on their letterhead. If we want to show this competitor's lease proposal to your landlord to create stronger leverage for your renewal negotiations, it has more clout if it looks more official than a casual e-mail.

Remember to not assume that any of what you're doing is held confidential. The grapevine in commercial real estate is a thriving one, and if you want the real estate agent to keep the deal quiet, don't just tell them, ask them and confirm in writing they will keep it confidential.

Your strength or leverage may lessen the closer you get to the renewal option deadline or Lease Termination date, so the farther in advance we can find out what the landlord wants to do with your tenancy and rental rate, the more time you have to react. If you're going to get bad or disturbing news (in the form of a rental increase), you want that information sooner rather than later. Keep in mind that most landlords want and plan to have their tenants renew, so you're usually on the same page plan-wise anyway.

This also applies in cases where you don't have a renewal option and want to remain in your same location. The closer you get to the end of the term, the less relocation time you have and it becomes clearer to the landlord that you can't or don't intend to consider a relocation. There's also the peace-of-mind factor of putting the lease renewal to bed well in advance, if possible, as you want to plan renovations.

If you move into a new location, you will need to attract customers to visit your place of business. Just one method of doing this is by means of signage. It's much easier for customers to find your business if you have a prominent sign with your company's name on it out front of the property. The bigger, the better – and the more attractive, the better too!

Optometry tenants shouldn't just assume their landlord shares their vision of a large sign on or in front of his property. In fact, The Lease Coach has seen many tenant requests for more or larger signage often initially rejected by landlords.

Landlords impose signage criteria and restrictions mainly because whatever they allow one tenant to do signage-wise, the other tenants will also want to do. Most commercial landlords prefer an uncluttered property without additional signage, simply because it looks more attractive. If your landlord does allow you to place a sign on the property, creating and maintaining it is your responsibility. Consider this fact carefully but know there are advantages to signage including the following:

Visibility: Signage makes your business easier to find for customers who are specifically looking for you. Obviously, if you're in an area with a sea of shopping plazas, a sign with your name on it makes it easier to pick you out of the crowd.

Customer Traffic: Shoppers who don't know you are there may be drawn in by your sign as they drive by.

Trust: Local residents who see your sign as they drive back and forth to work each day are eventually more likely to do business with you when the time comes.

When it comes to signage, optometry tenants can make many common mistakes. Beware of the following:

With pylon signage (the tall sign by the roadway that tells passers-by what tenants are in the plaza), tenants typically pay the landlord rent to advertise on the signs. Don't assume that you'll automatically get a sign panel. Keep an eye on what your landlord is currently charging for pylon signage as well as any provisions for increases or to terminate your signage rights. Don't let the lack of current pylon signage space stop you. The Lease Coach has successfully negotiated for the first right of refusal for any signage panel that may become available in the future.

Sidewalk sandwich boards and banners can be extremely useful for optometry tenants trying to attract business, but landlords may say, "no". The Lease Coach has negotiated predetermined times when the tenant can use these signs – for example, 4 – 6 weeks in advance of busy "back-to-school" sales periods. We have found that landlords may be more comfortable knowing that these signs will not be out all year and, thereby, creating clutter (in a landlord's mind …).

Understand that a commercial landlord typically sees signage as an extra rental income stream. By creating a pylon sign that has fewer panels than tenants in the building, the landlord can assure that demand is greater than supply – thus allowing the landlord to charge a substantial rent or monthly fee for these pylon signs.

You should also know that, when it comes to paying rent for signage, sometimes you're paying for both sides of the pylon sign. Sometimes that landlord may even try to charge you for fascia signage on the front of the building and (perhaps more desirable) electronic signage elsewhere (if your business has an illuminated signage board on the property).

If you're not sure whether you'll benefit from signage or how long you may want to be on the property's pylon signage, negotiate a right to terminate your signage rights and associated rent obligations. Make sure, however, that you understand whether the landlord has the right to increase signage rental rates or terminate your right to signage.

Case Study

Optometry tenants often get into trouble by assuming that signage will be free. The Lease Coach remembers one landlord who bought a building, noticed that all tenants had the right to have signage above their location, but also observed the landlord could charge for such signage. In this case, the landlord charged tenants for signage over their business doors. The tenants could remove this signage and avoid the monthly charges, but how would their customers identify their location?

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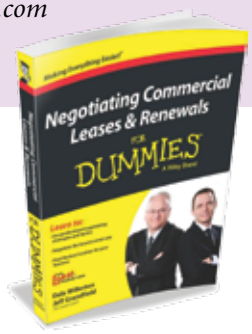


Is it Time to Look at What We Do?

By Scot Morris, OD

Dr. Scot Morris owns an independent practice in Denver, Colorado. He is also the Co-founder of 4ECPs – a business resource company for Optometrists. 4ECPs has three divisions, Jobs – Training – Marketing. Check out more information at www.4ECPs.com. Scot is also editor of Optometric Management, speaker, author, consultant and business innovator. Correspondence may be directed to scot@mecace.com.

We often go about our day and do the same thing over and over again. Let's call it routine. But is it the best and most efficient way of doing things or just "what we do?" Let's look at this from a consumer perspective. How long should an exam take? Fifteen minutes, 30 minutes, 45? For all of us, time is the one thing we can't get enough of or get back and it is our most valuable resource. Are we valuing that of our consumers, and our own?

I want to challenge each of you reading this to work an hour less a day. That's right, one hour less. What would you do with that hour? *Do I have your attention now?*

Let's learn how to "find" that hour. If you are seeing 15 patients a day and you can "save" 4 minutes per patient, then you now have an extra hour. That is only four minutes. In most instances, practices could improve their efficiency by 20-40% (8-12 minutes) and improve their bottom lines substantially by just analyzing what each and every person in the office actually does every day. This process is called **workflow efficiency analysis**.

All businesses have a workflow process. Many businesses have no idea what their process is though. There are approximately 102 steps to get a patient from the time they schedule an appointment until they are seen again the following year, and this doesn't include any marketing, human resources, inventory management, or operational tasks. Each of these steps is an opportunity lost or gained to educate your customer, to sell something, and an opportunity to make an impression-good or bad. If you really want to provide better care, more efficient service, and improve your bottom line, this exercise will be one of the most eye opening and beneficial experiences that you will ever undertake as a business person. By thinking like a business person, not a doctor, you will start to think about how each step of the process works.

So how do we improve both our efficiency and our effectiveness?

This takes four steps.

STEP 1: Identify where you are now. How long does it take you to currently see a patient? We call this DDD (Door to Dr. Done). First of all, write down what you think it is. Let's call this the estimate. Now figure out what the "real" number actually is. Document what time a patient arrives and what time the doctor is done and the exam moves to the retail part of the visit. Next, determine what your real ratios are. The best way to evaluate this is to measure your Encounters per Hour. This is determined by taking the Total # of Patients/ Hours worked in a given time period.

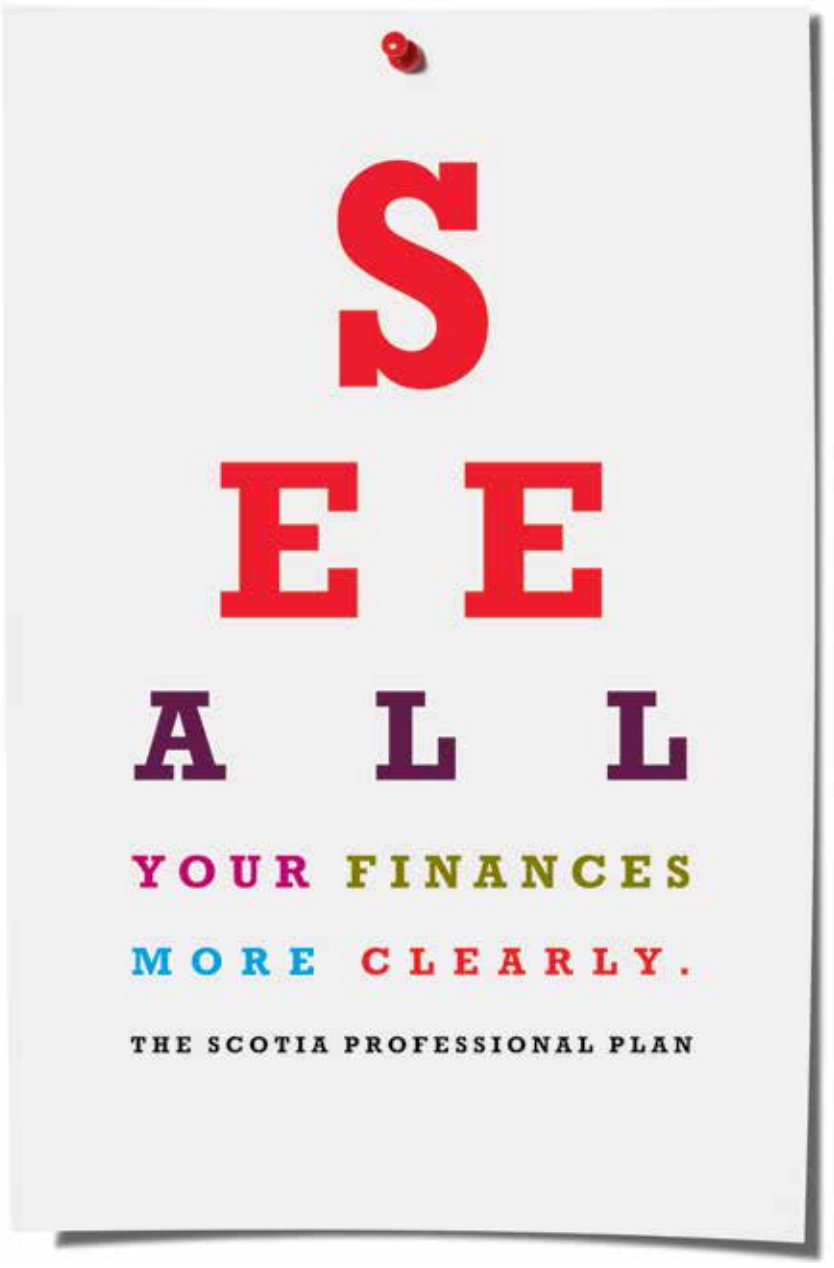
STEP 2: Identify what you do now. The next step is to identify each of the approximately 100 steps in your consumer's experience. Identify the processes that occur at each step of the consumer process in your office. Start slow. Ask each person in your office to list specifically each step that your front desk performs. Next, have each person in the office list in order which process occurs first, second, and so on. Have them do this individually. Do it yourself. Then collect and combine all the answers. Prepare to be amazed. Don't be surprised if everyone in the office gives completely different answers. The graph below gives an example of the various steps that may happen just during the "appointment and check-in" process. Look at it as a challenge to get everyone on the same page. This process will take a few weeks. This will take 6-8 weeks to complete.

STEP 3: Process Streamlining. Now break down each step and what is actually being done and said. If the process doesn't have a purpose that educates, sells, or improves efficiency, get rid of that step. Now repeat this step for each department (reception pre-test, provider, optical, contact lens, check-out, billing). Determine who says what. Who does what. What do they do it or say? Who do they say it to?

STEP 4: Communication Review & Process Refinement (scripts and protocols) Have your staff write scripts of what they actually say to the consumer during each step. If they are not educating or selling, then you need to change what is being said. Then decide if each step could be done more efficiently or eliminated altogether. This process may take a month or so. Once you are done with this step move to pre-test, the doctor's exam, the optical, the contact lens area, check-out, and billing. This process does take a while but the sea changes in efficiency and profitability are well worth it. In essence, at each point of the process, we need to decide how the following things are being presented. Consider each of the points in the table to the right when assessing the scripts for each step.

Communication Considerations

1. What are we trying to accomplish? (Our goal)
2. What are we trying to sell or promote?
3. What is their need or want? How do we find this out?
4. How can we orient them to what we want to talk about?
5. What are the potential barriers to communication
6. Is that what we are really saying?
7. Do they understand it? How do you know?
8. How can we follow-up?



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Est-il temps d'examiner notre façon de faire les choses?

Par Scot Morris, docteur en optométrie

Dr Scot Morris possède son propre cabinet à Denver, au Colorado. Il est aussi cofondateur de 4ECPs – une entreprise de ressources professionnelles pour les optométristes. 4ECPs englobe trois divisions : Emplois – Formation – Marketing. Consultez www.4ECPs.com pour en savoir davantage. Scot est aussi rédacteur en chef de la publication Optometric Management, conférencier, auteur, consultant et innovateur en affaires.

Souvent, dans notre quotidien, nous refaisons toujours la même chose. Disons que c'est la routine. Mais est-ce la meilleure façon et la façon la plus efficace de faire les choses, où est-ce simplement « notre façon de faire »? Envisageons les choses du point de vue du consommateur. Combien de temps devrait durer un examen de la vue? Quinze minutes, trente minutes, quarante-cinq? Pour chacun d'entre nous, le temps est la seule chose dont nous n'avons jamais trop; il est impossible à récupérer, et c'est notre ressource la plus précieuse. Accordons-nous au temps de nos clients et à notre temps la valeur qu'il mérite?

Je mets au défi chacun d'entre vous qui me lisez de travailler une heure de moins par jour. C'est exact, une heure de moins. Que feriez-vous de cette heure? *J'ai votre attention maintenant?*

Apprenons maintenant à « trouver » cette heure. Si vous recevez 15 patients par jour et que vous pouvez « gagner » quatre minutes par patient, vous aurez alors une heure supplémentaire. Quatre petites minutes! Dans la plupart des cas, les cabinets pourraient améliorer leur efficacité de 20 à 40 % (8 à 12 minutes) et améliorer considérablement leur bilan simplement en analysant ce que fait réellement chaque personne au bureau tous les jours. Ce processus s'appelle **l'analyse de l'efficacité du déroulement du travail**.

Toutes les entreprises ont un processus de déroulement du travail. De nombreuses entreprises n'ont cependant aucune idée de leur processus. Il y a environ 102 étapes entre la prise de rendez-vous par un patient et le rendez-vous ultérieur l'année suivante, et c'est sans compter le marketing, les ressources humaines, la gestion des stocks ou les tâches opérationnelles. Chacune de ces étapes est une occasion saisie ou perdue d'éduquer votre client ou de vendre quelque chose, et une occasion de faire bonne ou mauvaise impression. Si vous voulez vraiment fournir de meilleurs soins, donner un service plus efficace et améliorer votre bilan, cet exercice sera l'une des expériences les plus révélatrices et bénéfiques que vous entreprendrez à titre d'homme ou de femme d'affaires. En remplaçant le raisonnement médical par le raisonnement commercial, vous commencerez à penser au fonctionnement de chaque étape du processus.

Comment pouvons-nous améliorer à la fois notre efficience et notre efficacité?

Cela est possible en quatre étapes.

PREMIÈRE ÉTAPE : Déterminez où vous en êtes. Combien de temps dure une consultation avec un patient actuellement? Nous dirons le « porte-à-porte » (de l'arrivée du patient à la porte du bureau de l'optométriste jusqu'à son départ après l'examen). Pour commencer, notez le temps que vous croyez qu'il vous faut. Appelons ça l'estimation. Déterminez maintenant la durée « réelle » de la consultation. Notez l'heure d'arrivée du patient et l'heure à laquelle l'optométriste a terminé son travail (le moment où le client passe à la partie vente de la consultation). Déterminez ensuite vos ratios réels. La meilleure façon de les évaluer consiste à mesurer le nombre de consultations par heure. Vous y arriverez en prenant le nombre total de patients divisé par les heures travaillées dans une période donnée.

DEUXIÈME ÉTAPE : Déterminez ce que vous faites. L'étape suivante consiste à définir chacune de la centaine d'étapes de l'expérience des consommateurs. Déterminez les processus applicables à chaque étape de l'expérience du consommateur à votre cabinet. Commencez lentement. Demandez à toutes les personnes qui travaillent à votre cabinet de dresser une liste précise de chaque étape effectuée par votre bureau de réception. Demandez ensuite à toutes ces personnes de placer les étapes dans l'ordre de leur déroulement. Demandez-leur de faire l'exercice individuellement. Faites-le également

vous-même. Puis recueillez et combinez toutes les réponses. Préparez-vous à être étonné. Ne soyez pas surpris si chacun donne des réponses complètement différentes. Le diagramme ci après donne un exemple des diverses étapes qui peuvent constituer le simple processus de « rendez-vous et accueil ». Voyez cela comme un défi visant à mettre tout le monde au diapason. Ce processus prendra quelques semaines. Il vous faudra six à huit semaines pour l'achever.

TROISIÈME ÉTAPE : Rationalisez les processus. Analysez maintenant chaque étape; ce qu'on y fait et ce qu'on y dit. Si un processus ne sert pas à éduquer, à vendre ou à améliorer l'efficience, éliminez-le. Répétez ensuite cette étape pour chaque service (test préalable, fournisseur, opticien, lentilles de contact, départ, facturation). Déterminez qui dit quoi. Qui fait quoi. Que font-ils ou que disent-ils? À qui le disent-ils?

QUATRIÈME ÉTAPE : Faites l'examen des communications et affinez les processus (textes et protocoles). Demandez aux membres de votre personnel d'écrire ce qu'ils disent aux consommateurs à chaque étape. S'ils ne font ni éducation ni vente, vous devez revoir ce qu'ils disent. Décidez ensuite si chaque étape pourrait être faite de façon plus efficiente ou carrément être éliminée. Ce processus pourrait prendre environ un mois. Après cette étape, passez aux étapes suivantes : test préalable, examen de l'optométriste, opticien, lentilles de contact, départ, et facturation. Ce processus prend du temps, mais les transformations radicales qu'il entraîne en matière d'efficience et de rentabilité en valent vraiment la peine. À chaque point du processus, nous devons essentiellement décider comment sont présentés les éléments suivants. Examinez chacun des points du tableau à droite lorsque vous évaluez les choses à dire à chaque étape.

Considérations liées à la communication

1. Que tentons-nous d'accomplir? (Notre but)
2. Que tentons-nous de vendre ou de promouvoir?
3. Quels sont leurs besoins ou leurs souhaits? Comment pouvons-nous le déterminer?
4. Comment pouvons-nous les orienter vers les sujets dont nous voulons parler?
5. Quels sont les obstacles potentiels à la communication?
6. Est-ce vraiment ce que nous disons?
7. Sommes-nous compris? Comment le savez-vous?
8. Comment pouvons-nous assurer un suivi?

La vie de Louchana a été transformée grâce à un examen de la vue et à une paire de lunettes.

Photo gracieuseté de Cielo Pictures

En Haïti, seulement trois optométristes et six ophtalmologistes du secteur public desservent un pays de dix millions de personnes. L'accès aux soins oculaires et aux lunettes est donc difficile pour plus de 70 pour cent de la population.

Le manque de soins oculaires empêche les Haïtiens, dans une grande mesure, de rompre le cycle de la pauvreté grâce à une meilleure éducation et à de meilleurs emplois.

Louchana (sur la photo), de Limbe, avait des maux de tête lancinants lorsqu'elle essayait de lire à l'école. Elle avait aussi du mal à se concentrer.

Vous pouvez donner le don de la vue à des milliers d'écoliers comme Louchana.

Optometry Giving Sight finance des programmes durables de soins oculaires et de la vue en Amérique latine, en Afrique, en Asie, aux États-Unis, en Australie et en Europe de l'Est.

Vos dons aideront à financer les écoles locales d'optométrie, la construction de centres communautaires de la vue et la fourniture de lunettes sans frais ou à peu de frais.

Pour en savoir plus ou pour faire un don aujourd'hui même, veuillez vous rendre à:
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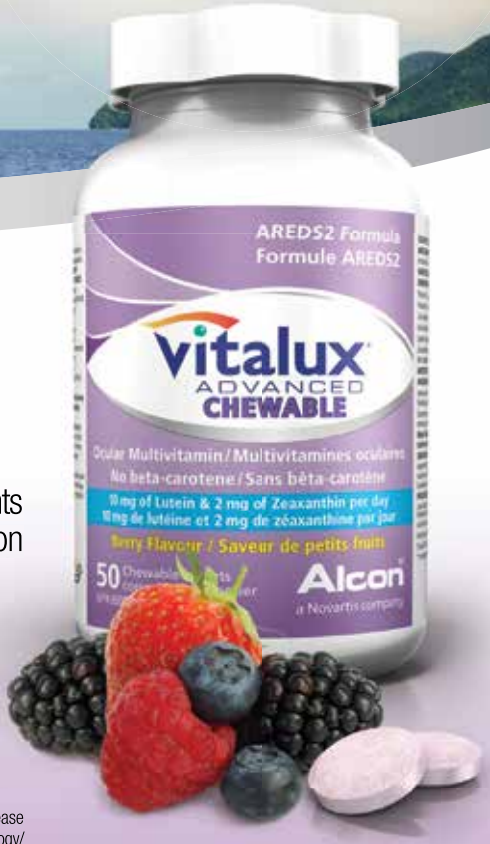

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1. Chew.E. et al The Age-Related Eye Disease Study 2 (AREDS2) Research Group: Excerpt Results from the Age-Related Eye Disease Study2 (AREDS2) Slide Deck posted online Feb 11 2014 accessed Dec 16, 2014 at http://www.slideshare.net/VisionaryOphthalmology/optometry-1-2014. 2. Vitalux® is the #1 physician-recommended family of ocular vitamins through The Medical Post & L'actualité médicale and Pharmacy Practice and L'actualité pharmaceutique 2014 Survey on OTC Counseling & Recommendations, prepared by Rogers Business and Professional Publishing Research Group, conducted October 2013 to December 2013. The online survey was completed by 1,136 physicians. Recommendations by percentage of physicians: Vitalux® (48%); brand(s) only (47%); private label (4%); both brand(s) and private label (31%). Margin of error: +/- 2.4%.

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