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Letters to the Editor

Laterality of Periocular Basal Cell Carcinomas in Relation to Driving Practices in Philadelphia, PA, U.S.A.

To the Editor:

Basal cell carcinoma (BCC) is the most common malignant tumor of the eyelids, and the link between ultraviolet light in sun exposure and BCC has been well described.[1] A study in the United Kingdom further suggested a relationship between driving habits and laterality of periocular tumors in men, because men in the United Kingdom are more likely to be the driver and thus be exposed to greater ultraviolet rays on the right side of the face. (Jones CA, Adams MW. Why you should let your wife drive: the distribution of periocular basal cell carcinomas. Paper presented at: the Thirty-Fourth Annual Scientific Symposium of the American Society of Ophthalmic Plastic and Reconstructive Surgery; 2004; New Orleans, LA.) In the United States, it would be expected that periocular tumors are more likely to occur on the left side of the face, since it is presumably exposed to greater solar damage. We examined this relationship through a retrospective analysis of 131 patients who were diagnosed with BCC at a tertiary care center in Philadelphia, between 2000 and 2005. Variables such as sex, laterality of the eyelid tumor, location of the tumor, and age at diagnosis were analyzed.

The diagnosis of periocular BCC was made in 131 patients, of which 54 were male and 77 were female (Table). The most frequent site of periocular BCC in males or females was the lower eyelid, a finding consistent with previous epidemiologic studies.[2] Basal cell lesions in males occurred on the right side in 31 patients and on the left in 23 patients. Similarly, females had 41 lesions on the right and 36 lesions on the left. Regardless of sex, there was no significant difference in laterality of BCC (chi-square, $p = 0.222$).

Our findings do not support the conclusion that driving habits have a causal relationship with laterality of BCC in the U.S.A. Studies have shown that the development of facial BCC is poorly correlated to the cumulative affects of ultraviolet radiation alone,[3] and that episodic ultraviolet exposure may be more harmful than cumulative sun exposure.[4] The fact that this relationship is found among males in the United Kingdom suggests there may be differences in driving patterns among males and females within these populations. It would be interesting to repeat this study using a specialized subset of patients, such as those with driving-related occupations.

Frequency of periocular distribution of basal cell carcinoma in males and females

	Right				Left			
	UL	MC	LL	LC	UL	MC	LL	LC
Males	6	6	18	1	3	0	20	0
Females	8	8	25	0	5	2	29	0

UL, upper lid; MC, medial canthus; LL, lower lid; LC, lateral canthus.

Katie E. Schrack, B.S.
Omaya H. Youssef, M.D.

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Re: "Laterality of Periocular Basal Cell Carcinomas in Relation to Driving Practices in Philadelphia, PA, U.S.A."

To the Editor:

We are interested to read the correspondence of Dr. Schrack and Dr. Youssef from Wills Eye Hospital. As they suggest, our findings (Jones CA, Adams MW. Why you should let your wife drive: the distribution of periocular basal cell carcinomas. Paper presented at: the Thirty-Fourth Annual Scientific Symposium of the American Society of Ophthalmic Plastic and Reconstructive Surgery; 2004; New Orleans, LA.) supported a possibly causal relationship between driving habits and the laterality of periocular basal cell carcinoma in the United Kingdom.

We undertook a retrospective analysis of those patients who underwent surgical removal of a periocular basal cell carcinoma between 2001 and 2004, analyzing 490 preoperative and postoperative digital photographs. Of the 248 patients in our study, there were 137 males and 111 females. Among the men, the tumor was most likely to occur on the right side of the face: 80 on the right, 57 on the left side ($p = 0.494$). However, in the female patients, there was no statistically significant difference in the laterality of the tumor: 55 on the right, 56 on the left ($p = 0.924$).

We suggest that our findings can be explained by the driving habits of our population. In the United Kingdom there are more male than female drivers,[1] and this is most evident in older people. Men usually drive, and therefore sit with the right side of the face more exposed to sunlight. Females more often travel as passengers, and may be expected to receive a more even distribution of sunlight on the face. This right-sided predominance of basal cell carcinoma also was noted in Australia[2] where, until recently, the population also drove on the left side of the road.

The study from Wills showed no difference in laterality. We suggest that there may be a number of reasons for the apparent

discrepancy between our findings. Air conditioning is a relatively recent feature in British cars, and remains less common than in U.S. models. The driver of a car without air conditioning is more likely to open the side window and so be exposed to a greater degree of ultraviolet light. Philadelphia is 10° farther south and it is possible that the higher general ultraviolet exposure masks the effect of driving exposure to sunlight. Finally, our population may differ in occupation and demographics, and the numbers in this study are relatively small. Larger surveys from a variety of countries may provide a conclusive finding.

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M. Adams, M.B.BCH., M.A., M.R.C.Oph.

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Re: "Congenitally Enlarged Extraocular Muscles: Can Congenital Thyroid Eye Disease Exist in a Euthyroid Infant?"

To the Editor:

In reference to a recent article by Burroughs et al.,[1] if there is no historical, biochemical, immunologic, or histologic evidence of thyroid disease in baby or mother, how can one sustain a diagnosis of thyroid eye disease?

We have collected a number of cases of young patients with the radiologic appearance—but no other evidence—of thyroid eye disease.[2] The diagnosis of thyroid eye disease is not tenable in our group of patients nor, I believe, in the case presented by Burroughs et al.

Lionel Kowal, F.R.A.N.Z.C.O.

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2. Kowal L, Cochrane S, McKelvie P, Bigault O. Enlarged muscle strabismus. In: de Faber JT, ed. *Progress in strabismology: 9th meeting of the International Strabismological Association, Sydney, Australia, 17–20 April, 2002*. Lisse: Swets & Zeitlinger, 2003: 257–60.

Reply re: "Congenitally Enlarged Extraocular Muscles: Can Congenital Thyroid Eye Disease Exist in a Euthyroid Infant?"

To the Editor:

We thank Dr. Kowal for his interest and comments on our brief report.[1] We agree that enlargement of extraocular muscles can arise from numerous causes, and provided a differential in the report and specifically addressed the likely causes for the reported subject. Dr. Kowal kindly included his reference on enlarged muscle strabismus describing a number of cases of young patients with the radiologic appearance of thyroid eye disease (TED) but no other evidence of TED.[2] We respectfully re-emphasize that our hypothesis of probable TED is based on the clinical findings of eyelid retraction with globe proptosis and not on the radiologic findings. Oculoplastic specialists consider TED first on the differential for eyelid retraction with proptosis, and some cases fail to show any laboratory abnormalities for either thyroid function or antibodies.[3] We, however, agree that there is no certainty regarding the infant's diagnosis, so the report title included the question of whether TED can exist in a euthyroid infant because the infant's findings would have been considered TED in any other age group. The importance of our report is that some of the similar reported cases in very young patients may indeed represent euthyroid Graves disease.

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Richard Anderson, M.D.
Robert Hoffman, M.D.
Richard Elliot, M.D.
John McCann, M.D., Ph.D.

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Re: "Minimally Invasive Conjunctivodacryocystorhinostomy With Jones Tube"

To the Editor:

We read with interest an article by Devoto et al.[1] wherein the authors describe a minimally invasive technique for placement of a Jones tube via a transcaruncular approach without using a skin incision. We described almost the identical procedure several years ago,[2] but the authors unfortunately failed to acknowledge this report in their paper. Credit should be given to earlier publications.

David R. Jordan, M.D.
Stephen R. Klapper, M.D.

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2. Klapper SR, Jordan DR. Jones tube insertion in children with canalicular agenesis. *Ophthalmic Surg Lasers* 1999;30:495–8.

Reply re: "Minimally Invasive Conjunctivodacryocystorhinostomy With Jones Tube"

To the Editor:

We would like to thank Drs. Klapper and Jordan for reminding us of a previous report where they used a similar technique for conjunctivodacryocystorhinostomy.[1] They described the use of an 18-gauge needle to create a track between the eye and the nose. A dilator was then used to enlarge this track and place a Jones tube anterior to the middle turbinate. They used this technique in 2 cases of infants born with canalicular agenesis.

It is useful to identify and reinforce some differences that we believe are of critical importance between their technique and ours.[2] We describe the use of a 14-gauge angiocatheter. This size allows the insertion of the tube without further dilations. The use of the Teflon sheath to guide the insertion minimizes inadvertent trauma to the septum. In adult patients, it is usually difficult to place the tube anterior to the middle turbinate, because the area of thin lacrimal bone that allows the passage of the angiocatheter lies more posterior. That is why a limited anterior turbinectomy is usually necessary.

Finally, many authors have previously tried different ways of placing the Jones tube without a skin incision and we have cited them in our work. We inadvertently missed the report by the above authors, so we would like to apologize.

Martin H. Devoto, M.D.
Francesco P. Bernardini, M.D.
Carlo de Conciliis, M.D.

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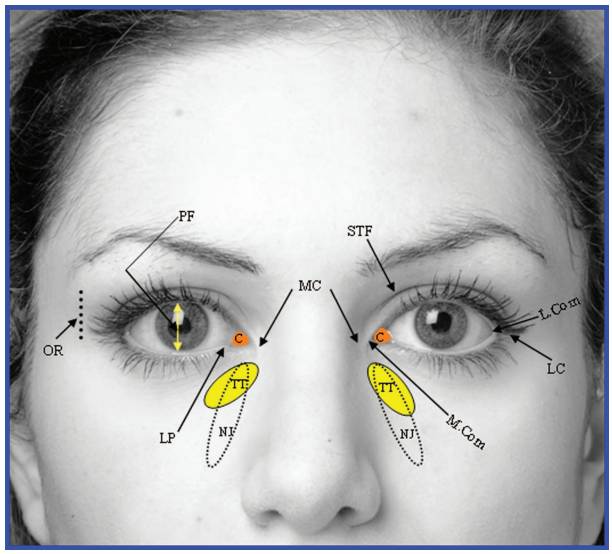
Defining the Tear Trough

To the Editor:

The increasing use of noninvasive techniques to rejuvenate the periorbital region has fostered increasing patient awareness of contour defects in this area. As more techniques are being investigated, it is of vital importance for our definition of each of these areas to be consistent. Of particular concern is the lack of agreement among authors about the exact location of the tear trough and the tear trough deformity. On review of the literature, the terms "nasojugal depression" and "tear trough deformity" have been used interchangeably. Le Louran[1] mentions that "as part of the aging process, the junction between the lower eyelid and cheek develops in a nasojugal or tear trough depression medially." The nasojugal fold, however, has been defined anatomically by Whitnall[2] as the area corresponding to



TT, tear trough; NJ, nasojugal groove; C, caruncle; MC, medial canthus; LC, lateral canthus; L. Com, lateral commissure; M. Com, medial commissure; STF, supra tarsal fold; PF, palpebral fissure; LP, lacrimal puncta; OR, orbital rim.

a fascial interstice fixed to the bone between the orbicularis oculi muscle and angular head of the quadratus labii superioris muscle, and along its line runs the facial vein and artery.

The tear trough should be defined as the depression of the medial lower eyelid just lateral to the anterior lacrimal crest and limited in its inferior aspect by the inferior orbital rim (Fig). This region corresponds anatomically to where the lacrimal sac lies, hence the term "tear trough." In addition, Kane[3] provides a similar description of the tear trough as a depression centered over the medial inferior orbital rim and bounded superiorly by the infraorbital fat protuberance. He also mentions that the skin at the depth of this groove has very little fat beneath it, contributing to the apparent depression. Orbital fat herniation above the orbitomalar ligament,[4] loss of osseous support, and loss of soft tissue may all contribute to tear trough deformity as part of the aging process. We have identified and corrected tear trough deformities in many young patients, and it is apparent that it is not simply an age-related deformity. We propose that the tear trough be defined as only the superior aspect of the nasojugal groove occurring in patients of all age groups.

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Jesús J. Torres, M.D.
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Kent Remington, M.D.

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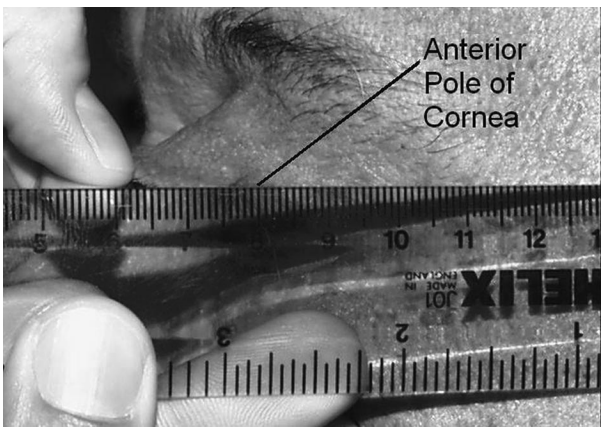
Quantifying Upper Eyelid Laxity in Symptomatic Floppy Eyelid Syndrome by Measurement of Anterior Eyelid Distraction

To the Editor:

In floppy eyelid syndrome (FES), eyelid laxity and redundancy result in symptomatic eyelid malpositions that can cause discomfort and chronic papillary conjunctivitis. Associated systemic conditions include obesity and sleep apnea.[1] Methods for estimating eyelid laxity in FES include evaluating the relative laxity of the medial and lateral canthal tendons and the overall eyelid laxity. McNab[1] described measuring the vertical manual displacement of the lax upper eyelid in FES and termed this the "vertical eyelid pull." Robert et al.[2] defined "vertical hyperlaxity" of the eyelid as the maximum distance from the palpebral rim to the center of the pupil after manual vertical traction on the upper eyelid. Karger et al.[3] developed a strain gauge device to measure the force necessary for vertical displacement of the upper eyelid. Mojon et al.[4] measured eyelid distraction, presumably the lower eyelid, citing the eyelid distraction techniques of Hill and of Liu and Stasior in 26 sleep apnea patients. Horizontal eyelid laxity also may be assessed by grading the displacement of the punctum or lateral canthal angle.[5]

We measured anterior eyelid distraction in both upper eyelids of 11 consecutive patients presenting with symptomatic unilateral FES over a 5-year period. The eyelid was distracted anteriorly, away from the anterior pole of the cornea, by manually grasping the eyelashes and tugging forward in a horizontal plane. The distance from the anterior corneal pole to the distracted eyelid margin was measured in millimeters by perpendicularly viewing the horizontal distance through a transparent ruler (Fig.). This is similar to the view obtained with the Luedde exophthalmometer. The mean displacements of both the symptomatic eyelids and the asymptomatic eyelids were calculated. Paired t test analysis was performed to compare the amounts of displacement between the symptomatic asymptomatic eyelids. The mean age of patients presenting with FES symptoms was 57 years (range, 36–80 years). The average displacement of the symptomatic eyelid was 17.09 mm (range, 14–20 mm), while that of the asymptomatic eyelid was 11.72 mm (range, 10–15 mm). The mean difference between the two eyelids was 5.36 mm. Both 1-tailed and 2-tailed t tests showed clinical significance ($p < 0.02$).



Distance from the anterior corneal pole to the distracted eyelid margin measured using a transparent ruler.

In summary, our small retrospective study showed surprisingly little overlap between anterior eyelid distraction measurements in asymptomatic eyes (≤15 mm in 11/11) vs. symptomatic eyes (≥14 mm in 11/11). We hope that methods of quantifying and grading eyelid hyperlaxity in FES may eventually allow staging of disease severity and aid in selection of appropriate surgical intervention.

Srinivas S. Iyengar, M.D.
Jemshed A. Khan, M.D.

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Misdiagnosis in Chronic Canaliculitis

To the Editor:

Despite well-described clinical findings such as pericanalicular inflammation, pouting punctum, and mucopurulent discharge usually containing yellow granules, chronic canaliculitis often is misdiagnosed.[1–3] We observe that misdiagnosis in patients with these findings may lead to unnecessary manipulations of the lacrimal system, which result in further delay in the effective treatment of this condition.

We examined a 51-year-old woman who presented with a 3-year history of purulent discharge and painful swelling of the inner part of her right lower eyelid. She reported that her condition was diagnosed as acute dacryocystitis and she had received many lacrimal irrigations at other centers. Examination showed a typical pouting punctum and pericanalicular inflammation, consistent with canaliculitis, but no concretions were observed on canalicular compression. A 1-snip punctoplasty and canaliculotomy by an incision in the conjunctival side of the canaliculus was performed with curettage of the sticky, nongranular discharge. Atypically, no concretions, sulphur granules, or particulate matter were obtained along the canaliculus despite thorough exploration. At her follow-up examination 1 week later, the pericanalicular inflammation had resolved, but a subtle swelling persisted. We attributed it to our intervention. Two months later, the patient returned, reporting that after a quiescent period of 2 weeks a severe swelling reappeared in the pericanalicular region; it resolved after she

Twelve dacryoliths extracted by the patient.

extracted 12 stones through the canaliculus by forcefully pressing on the medial canthal area. The swelling had completely resolved and she was asymptomatic. Microbiological culture of the stones yielded a negative result. The dacryoliths, 1 mm to 3 mm in diameter and dark brown in color, were sent for chemical analysis (Fig.). Elemental analysis by a thermal Jarrell Ash atomscan-25 inductive couple plasma spectrometer revealed the existence of diminutive amounts of sodium, calcium, and sulphur in the samples. However, most of the sample remained as a fiber residue, indicating that this sample was mainly an organic compound with a large molecular mass. The patient has been completely free of symptoms for 18 months.

Briscoe et al. reported that the average time lapse between onset of symptoms and diagnosis in 7 cases of *Actinomyces* canaliculitis was 3 years.[1] In a study by Anand et al.,[2] delayed diagnosis was noted in 7 of 15 canaliculitis patients. These authors reported nasolacrimal duct obstruction in 2 patients who had received multiple inappropriate sac irrigations before the correct diagnosis of chronic canaliculitis was made. Similarly, misdiagnosis as dacryocystitis led to unnecessary irrigations that may have pushed previously formed concretions and granules in more distal parts of the canaliculus in our case. The composition of the stones also suggests that they were previously rather than newly formed. Failure to find concretions during compression or canaliculotomy does not exclude the diagnosis of *Actinomyces* canaliculitis; the concretions may be situated in more distal parts of the canalicular system.

Chronic canaliculitis is frequently misdiagnosed. Awareness of the possibility that misdiagnosis may result in unnecessary manipulations may help ophthalmologists with the effective treatment of such patients.

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Iatrogenic Giant Fornix Syndrome of the Lower Eyelid

To the Editor:

Giant fornix syndrome is described by Rose[1] as a chronic relapsing conjunctivitis associated with severe corneal changes, which is due to the presence of a massive superior conjunctival fornix. We report a case of iatrogenic giant fornix syndrome affecting the lower eyelid.

A 90-year-old man was referred for blurred vision, thought to be due to cataracts. He reported a recurrent left conjunctivitis of 12 months' duration that responded to topical antibiotics but would recur on cessation of treatment. He underwent a Wies procedure 6 years previously for left lower eyelid entropion. He developed consecutive ectropion, and despite a lateral tarsal strip procedure, improvement was only partial. He later underwent excisions of excess and hypertrophic conjunctiva and partial excision of his left inferior tarsal plate.

Best corrected visual acuity at presentation was 6/18 OD and 6/60 OS. There were multiple superficial punctuate epithelial erosions involving the left cornea and bilateral nuclear cataracts of similar density. He had patent nasolacrimal ducts. There was no residual lower eyelid malposition, but the left inferior conjunctival sac had purulent discharge coming from its deep recesses. This grew *Staphylococcus aureus*. There was improvement after conjunctival lavage and a course of oral and topical ciprofloxacin, but discontinuation led to recurrences.

The microbiologist recommended alternating weekly cycles of chloramphenicol 0.5%, cefuroxime 5%, and gentamicin 0.3%, and after 2 complete cycles, 3 negative cultures, and improved corneal clarity, he had uneventful left cataract surgery. Ceftriaxone (2.0 g) and 600 mg teicoplanin were given intravenously with 600 mg rifampicin orally, administered 1 hour preoperatively and repeated 12 hours postoperatively.

Six months postoperatively, his left best corrected visual acuity was 6/18, reduced presumably due to corneal epitheliopathy. The eye remains quiet on topical steroids and the alternating cycles of topical antibiotics.

According to Rose,[1] giant fornix syndrome results from a vicious cycle involving tear drainage problems and low grade conjunctivitis leading to the development of a *S. aureus*-laden protein coagulum sequestered in the upper fornix. This causes persistent re-inoculations despite repeated courses of topical antibiotics, which may result in ocular surface abnormalities ranging from toxic epitheliopathy to corneal perforation. Others also have reported an associated induced blepharospasm that may be attributed to corneal epitheliopathy.[2]

The superior fornix was the site of involvement in all of Rose's cases; he suggested that this was due partly to age-related disinsertion of the levator aponeurosis leading to an abnormally deep superior fornix. In our case, the inferior fornix was involved. We believe that this variation is due to the

anatomic changes created by multiple lower eyelid surgeries, especially the partial excision of the inferior tarsus. This resulted in the formation of a "giant" inferior fornix, which provided the perfect site for the sequestration of infected debris and a source of persistent re-inoculations and was likely to have contributed to toxic epitheliopathy.

This case demonstrates that giant fornix syndrome is not exclusive to the upper fornix and may develop in the lower eyelid following inferior tarsal plate excision. In difficult cases, consultation with the microbiologist may be necessary.

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Rosemary Robinson, F.R.C.S.I., F.R.C.Ophth.

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