

BITA ESMAELI  
STEVEN J. FRANK  
Houston, Texas, USA

FUNDING/SUPPORT: NO FUNDING OR GRANT SUPPORT.  
Financial Disclosures: The following authors have no financial disclosures:  
Bita Esmaeli and Steven J. Frank. The authors attest that they meet the  
current ICMJE criteria for authorship.

#### REFERENCES

1. Wolkow N, Jakobiec FA, Lee H, et al. Long-term outcomes of globe preserving surgery followed with proton beam radiation for adenoid cystic carcinoma of lacrimal gland. *Am J Ophthalmol* 2018;195:43–62.
2. Esmaeli B, Yin VT, Hanna EY, et al. Eye-sparing multidisciplinary approach for the management of lacrimal gland carcinoma. *Head Neck* 2016;38(8):1258–1262.
3. Han J, Kim YD, Woo KI, et al. Long-term outcomes of eye-sparing surgery for adenoid cystic carcinoma of lacrimal gland. *Ophthalmic Plast Reconstr Surg* 2018;34:74–78.
4. Woo KI, Sagiv O, Han J, Frank SJ, Kim YD, Esmaeli B. Eye-preserving surgery followed by adjuvant radiotherapy for lacrimal gland carcinoma: outcomes in 37 patients. *Ophthalmic Plast Reconstr Surg* 2018;34(6):570–574.
5. Esmaeli B, Ahmadi MA, Youssef A, et al. Outcomes in patients with adenoid cystic carcinoma of the lacrimal gland. *Ophthalmic Plast Reconstr Surg* 2004;20(1):22–26.
6. Williams MD, Al-Zubidi N, Debnam JM, Shinder R, DeMonte F, Esmaeli B. Bone invasion by adenoid cystic carcinoma of the lacrimal gland: preoperative imaging assessment and surgical considerations. *Ophthalmic Plast Reconstr Surg* 2010;26(6):403–408.
7. Esmaeli B, Golio D, Kies M, DeMonte F. Surgical management of locally advanced adenoid cystic carcinoma of the lacrimal gland. *Ophthalmic Plast Reconstr Surg* 2006;22(5):366–370.

## Long-term Outcomes of Globe-Preserving Surgery With Proton Beam Radiation for Adenoid Cystic Carcinoma of Lacrimal Gland



#### REPLY

WE THANK DRs ESMAELI AND FRANK FOR THEIR CAREFUL reading of our article, in which we strove to describe our findings as accurately as possible and also to report scrupulously the complications and therapeutic limitations we encountered. We also endeavored to compare our results with those of other series. In comparing our outcomes to those of other studies, we focused primarily on studies with a globe-preserving approach, while also touching upon selected studies with long-term follow-ups in which exenteration was a primary treatment modality.

We sincerely appreciate Drs Esmaeli and Frank's mention of 2 papers that were not included in the final version of our Discussion section.<sup>1,2</sup> Our in-depth analysis of previous

studies was significantly limited by the original reviewers, who stressed the need to shorten the paper, which precluded a well-deserved discussion of these other studies. Both of these papers focused on patients with adenoid cystic carcinoma of the lacrimal gland who were primarily treated with orbital exenteration with bone removal in combination with radiation. The earlier of these papers, which included mostly patients with larger tumors and basaloid histology, found that exenteration with bone removal and radiation did not decrease the risk of distant metastases.<sup>1</sup> The subsequent paper, which included 18 patients of whom 17 were treated with exenteration and external beam radiation, found that orbital bony invasion by tumor cells was present in most patients.<sup>2</sup> Both of these studies lend further support to the major points discussed in our paper<sup>3</sup>; specifically, that tumors with basaloid histopathology portend a poorer prognosis,<sup>4</sup> and that exenteration with bone removal does not prevent the development of metastatic disease.

With regard to correlations, using regression analyses we did not find any statistically significant relationships between tumor size and local recurrence ( $P = .2375$ ), tumor size and metastases ( $P = .3352$ ), tumor size and disease-free survival ( $P = .1496$ ), T category and local recurrence ( $P = .5397$ ), T category and metastases ( $P = .8251$ ), and T category and disease-free survival ( $P = .8642$ ). Caution is advised, however, in interpreting these results, as statistical analyses on small numbers of patients may be misleading. Significant relationships may become apparent with a greater sample size.

We have suggested in our paper, as have the present writers, that improvements in the design of radiotherapy portals and modalities are becoming more refined with time and should lead to improved results. We have straightforwardly addressed in our paper why photons were used in small doses; we do not believe that this feature seriously confounds our results. An important issue in comparisons of radiotherapy for lacrimal gland adenoid cystic carcinoma is provided in the study by Han and associates, which describes the exclusive use of photons with comparable results to proton beam therapy.<sup>5</sup> This will require additional study, as we have pointed out.

We are in complete agreement with Drs Esmaeli and Frank that, while our approach in treating localized orbital adenoid cystic carcinoma has shown progress, a salient but neglected area in need of further research and multicenter clinical trials is improving results for metastatic adenoid cystic carcinoma. Our belief is that collaborative efforts will lead to advances in the treatment of metastatic disease in the near future. Drs Esmaeli and Frank will certainly be central players in such investigations.

NATALIE WOLKOW  
FREDERICK A. JAKOBIEC  
HANG LEE  
Boston, Massachusetts, USA

**CONFLICT OF INTEREST DISCLOSURES:** SEE THE ORIGINAL article for any disclosures of the authors.

## REFERENCES

1. Esmaeli B, Golio D, Kies M, DeMonte F. Surgical management of locally advanced adenoid cystic carcinoma of the lacrimal gland. *Ophthalmic Plast Reconstr Surg* 2006;22(5):366–370.
2. Williams MD, Al-Zubidi N, Debnam JM, Shinder R, DeMonte F, Esmaeli B. Bone invasion by adenoid cystic carcinoma of the lacrimal gland: preoperative imaging assessment and surgical considerations. *Ophthalmic Plast Reconstr Surg* 2010;26(6):403–408.
3. Wolkow N, Jakobiec FA, Lee H, Sutula FC. Long-term outcomes of globe-preserving surgery with proton beam radiation for adenoid cystic carcinoma of the lacrimal gland. *Am J Ophthalmol* 2018;195:43–62.
4. Gamel JW, Font RL. Adenoid cystic carcinoma of the lacrimal gland: the clinical significance of a basaloid histologic pattern. *Hum Pathol* 1982;13(3):219–225.
5. Han J, Kim YD, Woo KI, Sobti D. Long-term outcomes of eye-sparing surgery for adenoid cystic carcinoma of lacrimal gland. *Ophthalm Plast Reconstr Surg* 2018;34(1):74–78.

**FUNDING/SUPPORT:** NO FUNDING OR GRANT SUPPORT. **Financial Disclosures:** The following authors have no financial disclosures: Mayuri Borgohain, Prafulla Sarma, Shahinur Tayab, Chengchira A. Sangma, and Susmita Paul. The authors attest that they meet the current ICMJE criteria for authorship.

## REFERENCES

1. Mansukhani SA, Barkmeier AJ, Bakri SJ, et al. The risk of primary open-angle glaucoma following vitreoretinal surgery—a population-based study. *Am J Ophthalmol* 2018;193(9):143–155.
2. Tranos P, Asaria R, Aylward W, et al. Long term outcome of secondary glaucoma following vitreoretinal surgery. *Br J Ophthalmol* 2004;88:341–343.
3. Govetto A, Domínguez A, Landaluce M, et al. Prevalence of open angle glaucoma in vitrectomized eyes. *Retina* 2014;34:1623–1629.
4. Razeghinejad MR, Katz LJ. Steroid induced iatrogenic glaucoma. *Ophthalmic Res* 2012;47(2):66–80.
5. Carnahan MC, Goldstein DA. Ocular complications of topical, peri-ocular, and systemic corticosteroids. *Curr Opin Ophthalmol* 2000;11:478–483.

## The Risk of Primary Open-Angle Glaucoma Following Vitreoretinal Surgery—A Population-based Study



## EDITOR:

WE CONGRATULATE AND HIGHLY APPRECIATE MANSUKHANI and associates for their article.<sup>1</sup> However, we would like to mention a few points and seek the authors' kind attention.

Firstly, it is not very clear to us why the cases in this study were designated as primary open-angle glaucoma. In previous studies, it was already established that raised intraocular pressure (IOP) was a known sequela of vitreoretinal surgery,<sup>2,3</sup> and in this present study also, raised IOP was following vitreoretinal surgeries and therefore secondary glaucomas.

Secondly, the authors have mentioned that high baseline IOP was associated with increased risk of primary open-angle glaucoma following vitreoretinal surgery. We are interested to know the baseline IOP of those who developed open-angle glaucoma postoperatively.

Thirdly, in this present study, subjects using steroid for more than 2 months were excluded. Whereas previous studies reported IOP rise within 3–6 weeks of steroid use and few studies reported early rise of IOP within first or second week after initiation of steroid use.<sup>4,5</sup>

MAYURI BORGHAIN  
PRAFULLA SARMA  
SHAHINUR TAYAB

## The Risk of Primary Open-Angle Glaucoma Following Vitreoretinal Surgery—A Population-based Study



## REPLY

WE THANK BORGHAIN AND ASSOCIATES FOR THEIR COMMENTS on our previously published paper, “The risk of primary open-angle glaucoma following vitreoretinal surgery—a population-based study.”<sup>1</sup> We agree that raised intraocular pressure (IOP) is a known sequela of vitreoretinal surgery owing to multiple causes. However, elevation of IOP is not synonymous with glaucoma, and is in fact not part of the current definition of glaucoma.<sup>2</sup> Most patients with elevated IOP never develop glaucoma, while a large proportion of glaucoma patients (27% in our study) do not have recorded IOP elevations. In the Discussion section of our paper, we listed reasons why the glaucoma in our patients could be considered secondary. However, we were unable to determine phenotypic differences from primary open-angle glaucoma (POAG). As well, there are clear secondary causes of glaucoma after vitreoretinal surgery, and our cases were designated as POAG to distinguish them from cases where a clear etiology was present.