data about specific species of bacteria. However, in the review process by THE JOURNAL it was thought that in the final data analysis a long listing of all the species cultures would not benefit the reader. Thus, we converted to the simple summary of the colony-forming units and species counts.

7. Although Dr. Sánchez-Thorin considered the sample size small, we found it adequate to provide meaningful statistics. A larger sample size would not necessarily have yielded more significant results.

We hope these explanations will be of use to Dr. Sánchez-Thorin. Furthermore, we hope this study will be beneficial to other ophthalmologists, especially those in areas of the world where postoperative antibiotics are unavailable. Povidone-iodine is now proving to be an effective treatment postoperatively, as well as preoperatively.

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Reappraisal of Biomicroscopic Classification of Stages of Development of a Macular Hole

EDITOR:

I READ WITH GREAT INTEREST THE RECENT ARTICLE, "Reappraisal of biomicroscopic classification of stages of development of a macular hole," by J. D. M. Gass (Am J Ophthalmol 119:752–9, June 1995). The updated classification, hypotheses, and observations of Dr. Gass explain many recent observations noted in the vitrectomy for prevention of macular hole study.[1] In this study, similar to Dr. Gass's observations, visual acuity was found to be an important predictor of progression to full-thickness macular hole.[2] Visual acuity was carefully evaluated by using standardized refraction techniques and Early-Treatment Diabetic Retinopathy Study vision charts. Stage I eyes with best-corrected visual acuity of 20/40 or better had a 30% chance of progression to a full-thickness macular hole, whereas stage I eyes with best-corrected visual acuity of 20/50 or worse had a 66% chance of progression to a full-thickness macular hole. This study suggests that a best-corrected visual acuity of 20/50 or worse is an important prognostic indicator for macular hole development, and could correlate with the development of Dr. Gass's stage 1-B occult hole. As the foveal photoreceptors centrifugally retract beneath the intact posterior hyaloid and internal limiting lamina of the retina, the visual acuity would expectedly decrease proportionately to the degree of photoreceptor migration. In the observation group of the Vitrectomy for Macular Hole Study, a national multi-centered randomized clinical trial,[3] which also required careful standardized refraction with the Early-Treatment Diabetic Retinopathy Study vision charts, stage II macular holes had a 69% progression rate to stage III or IV macular hole (unpublished data, American Academy of Ophthalmology, San Francisco, October 1994). Thus, stage IB macular holes with visual acuity worse than 20/50 have as high a progression rate as stage II macular holes, which supports Dr. Gass's theory of occult hole formation in stage I macular holes.

The Vitrectomy for Prevention of Macular Hole Study failed to show a marked benefit for pars plana vitrectomy and peeling of the posterior hyaloid without the use of intraocular gas tamponade in the management of stage I macular holes.[1] The updated classification of Dr. Gass explains why this would be expected, as many stage I macular holes, especially the stage IB macular holes, are truly occult full-thickness macular holes. In the vitrectomy group of the Vitrectomy for Prevention of Macular Hole Study, 40% of the patients progressed to a full-thickness macular hole after surgery.[1] This percentage contrasts with the high surgical success rates recently reported for vitrectomy surgical techniques with intraocular gas tamponade for full-thickness macular holes of recent onset of less than one year (94%, unpublished data, Drs. Wendel and Patel, American Academy of Ophthalmology, San Francisco, October 1994). One would intuitively expect to be able to obtain better visual and anatomic success at an earlier stage of the

disease process. However, this inability of vitrectomy and peeling of the posterior hyaloid alone to decrease the risk of progression of stage I macular holes is explained by Dr. Gass's theory of occult hole development. Perhaps, pars plana vitrectomy, peeling of the posterior hyaloid and intraocular gas tamponade, a technique with reported success in stage II macular holes,[4] should be studied in stage I eyes, but only in eyes at high risk of progression.[2]

Dr. Gass's theory of occult hole development also helps to explain why a late recurrence of macular hole can develop, even after successful resolution of a stage IB macular hole postoperatively.[5] Although this stage IB macular hole initially resolved after surgery with recovery of 20/30 visual acuity, a full-thickness macular hole later developed, despite never initially having a full-thickness defect biomicroscopically. If an occult hole was previously present as suggested by Dr. Gass, this could then reopen with the development of new centrifugal forces on the fovea. These new centrifugal forces on the fovea could be related to intraretinal elasticity, epiretinal membrane formation, or unrecognized residual cortical vitreous traction.[5]

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