Reviewer's report

Title: Immunohistochemical localization of urokinase-type plasminogen activator, urokinase type plasminogen activator receptor, and alpha2-antiplasmin in human corneal perforation: a case report

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Reviewer: Sally Twining

Reviewer's report:

The Case Report “Immunohistochemical localization of urokinase-type plasminogen activator, urokinase type plasminogen activator receptor, and #2-antiplasmin in human corneal perforation: a case report” present immunohistochemical localization of members of the Plasminogen/Plasminogen Activator system in the perforated cornea. The new piece of information in this paper is the localization of #2-antiplasmin to SMA positive cells, probably myofibroblasts in the cornea. The fact that this secreted protein is in the cells and not in the extracellular matrix is surprising.

Major Compulsory Revisions:

1. P5 More details of the case are needed-For example: Time line of development of the ulcer and presence of “hot tears”. Is there any systemic underlying pathology that could have contributed to the development of the ulcer? The case would have been of more interest if the cause of her ulceration was known based on her “continued steroid and antibiotic eye drops in her right eye for approximately 15 years”. Was there a fungal infection? A parasitic infection? Can any organisms be found in the tissues?

2. P8, L 3: To accurately say that a cornea is fibrotic, either a better photo of the cornea or immunohistochemistry for biomarkers needs to be carried out.

3. P8, L6: “ both neutrophils and corneal fibroblasts migrated in the stroma near the corneal ulcer”. At the magnification and quality of Figure 2, the identity of the inflammatory cells cannot be determined. They probably are neutrophils and corneal fibroblasts but enlarged cells as insets need to be added to better identify the presence of neutrophils. Can monocytes/macrophages be identified in the cornea?

4. CD68 is found on both macrophages and monocytes. The authors refer to the cells that stain with the antibody to CD68 as macrophages. This is probably true but the authors need to establish this identity.

Minor essential revisions

1. The English needs to be checked. In almost every sentence there is a problem with grammar.

2. The description of the case in the Abstract should be revised for readability.

3. The identification of uPAR and uPA and their colocalization on monocytes and
macrophages has been well studied. In addition, full length active uPAR is probably not present on myofibroblasts (Bernstein, Mount Sinai School of Medicine). The antibody used in this study probably is Abcam ab103791 which is made to a C-terminal peptide present both on the intact and on the cleaved form of the receptor. The import of this is not addressed in the paper.

4. P10 line 6 “degradation” should be substituted for the older term “melting” when referring to corneal ulceration.

5. P10 L17-18, Please refer to the #2AP positive cells as myofibroblasts or #-SMA positive fibroblasts.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Not suitable for publication unless extensively edited

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests