

REFERENCES

1. Mohammed I, Ross AR, Britton JO, Said DG, Dua HS. Elastin content and distribution in endothelial keratoplasty tissue determines direction of scrolling. *Am J Ophthalmol* 2018;194:16–25.
2. Lewis PN, White TL, Young RD, Bell JS, Winlove CP, Meek KM. Three-dimensional arrangement of elastic fibres in the human corneal stroma. *Exp Eye Res* 2016;146:43–53.
3. White TL, Lewis PN, Young RD, Meek KM. Elastic microfibril distribution in cornea: differences between normal and keratoconic stroma. *Exp Eye Res* 2017;159:40–48.
4. White TL, Lewis PN, Hayes S, et al. The structural role of elastic fibres in the cornea investigated using a mouse model for Marfan syndrome. *Invest Ophthalmol Vis Sci* 2017;58:2106–2116.
5. Hanlon SD, Behzad AR, Sakai LY, Burns AR. Corneal stroma microfibrils. *Exp Eye Res* 2015;132:198–207.
6. Feneck EM, Lewis PN, Ralphs J, Meek KM. A comparative study of the elastic fibre system within the mouse and human cornea. *Exp Eye Res* 2018;177:35–44.

REPLY



WE THANK LEWIS AND ASSOCIATES FOR THEIR COMMENTS in relation to our paper and for pointing out the corroboration of aspects of their work by our results. We also congratulate them on their contribution to this field of research.

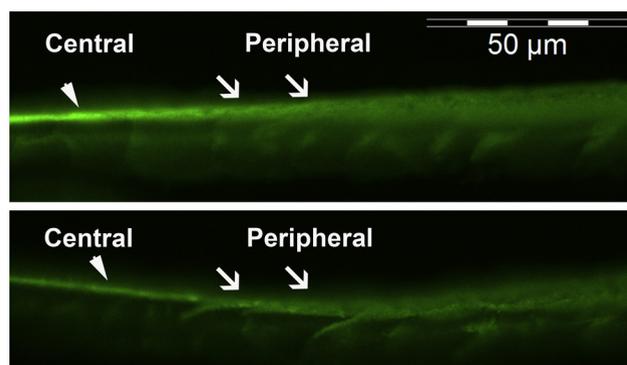


FIGURE. Two representative samples (Top and Bottom) of cryo-sections of Descemet membrane (DM) stained for elastin (Primary antibody: polyclonal rabbit anti-human primary antibody against elastin [5 mg/mL final concentration; Abcam, Cambridge, UK]; secondary antibody: donkey anti-rabbit IgG AlexaFluor 488 conjugate secondary antibody [ThermoFisher Scientific, Loughborough, UK]. Mounted in fluorescent mounting compound [Dako-Agilent Technologies, Cheadle, UK]). A clear band of elastin is seen in the central DM (arrowhead). The staining area becomes wider and more diffuse at the periphery (arrows).

They have neatly summarized results of their previous publications, which have essentially been referenced in our paper. The presence of elastin fibers in the human cornea has been known for several decades,¹ but their localization and distribution are being defined and refined. Our paper on the extension of the pre-Descemet layer (Dua's layer, PDL) into the trabecular meshwork² has focused attention on this relationship, and it is rewarding to see that corroboration for this is coming from other independent work, such as mentioned by the authors.³ Clinical evidence of the elasticity of PDL and Descemet membrane (DM) comes from the behavior of these tissues in lamellar keratoplasty, but the distribution of elastin fibers, as demonstrated in our study, offers the precise explanation for this behavior. The contribution of elastin fibers to the corneal stromal microarchitecture most likely provides the basis for observations made in relation to the passage of air during air-assisted lamellar surgery such as deep anterior lamellar keratoplasty and pre-Descemet endothelial keratoplasty.⁴

With regard to the specific question posed on any differences in elastin concentration between the posterior peripheral and central regions, we have preliminary data to show that there is indeed a difference. This is in relation to the distribution of elastin in DM, which is more diffuse and spread over a wider area at the periphery, unlike the distinct band in the center (Figure). However, in the PDL it remains more or less as in the center of the cornea.

IMRAN MOHAMMED
ANDREW ROSS
JOHN O. BRITTON
DALIA G. SAID
HARMINDER S. DUA
Nottingham, UK

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

REFERENCES

1. Alexander RA, Garner A. Elastic and precursor fibres in the normal human eye. *Exp Eye Res* 1983;36:305–315.
2. Dua HS, Faraj LA, Branch MJ, et al. The collagen matrix of the human trabecular meshwork is an extension of the novel pre-Descemet's layer (Dua's layer). *Br J Ophthalmol* 2014;98:691–697.
3. Feneck EM, Lewis PN, Ralphs J, Meek KM. A comparative study of the elastic fibre system within the mouse and human cornea. *Exp Eye Res* 2018;177:35–44.
4. Dua HS, Faraj LA, Kenawy MB, et al. Dynamics of big bubble formation in deep anterior lamellar keratoplasty by the big bubble technique: in vitro studies. *Acta Ophthalmol* 2018;96:69–76.