Human Accommodative Ciliary Muscle Configuration Changes Are Consistent With Schachar's Mechanism of Accommodation

Using two spectral-domain optical coherence tomography devices (SD-OCT), Shao et al.[1] simultaneously measure the changes in the anterior segment and ciliary muscle during 6 diopters (D) of accommodation in the left eyes of 33 subjects aged 20 to 39 years. They have provided images that permit outlining the ciliary muscle before and after accommodation.

Careful examination of their figure 2B1, reproduced here as Figure A, reveals notching of the anterior radial muscle fibers (Figs. B, C). This observation was not noted by the authors. From the scale provided by the authors, the notching of the anterior radial muscle is approximately 100 μm. This indicates that the anterior radial muscle fibers move approximately 100 μm toward the sclera with 6 D of accommodative effort.

This change in the configuration of the ciliary muscle during accommodation is consistent with the shape changes seen and reported with accommodation of the monkey ciliary muscle.[2] This observation is anticipated by the Schachar mechanism of accommodation.[3]

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References

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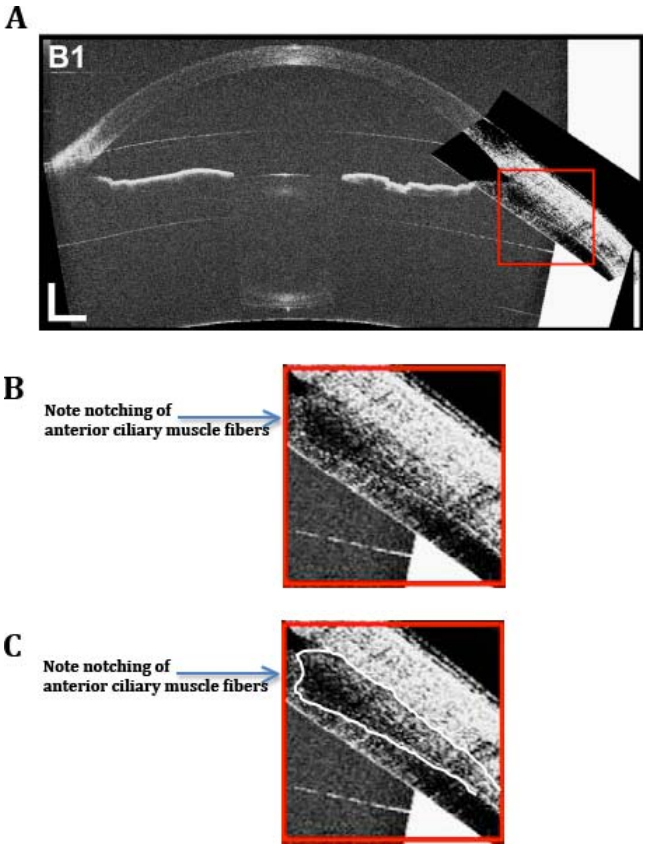

FIGURE. (**A**) A reproduction of the authors' figure 2B1 of the accommodated ciliary muscle of a 26-year-old subject. (**B**) A magnified view of the ciliary muscle revealing notching of the anterior ciliary muscle fibers. (**C**) The ciliary muscle is outlined with a *white line* showing the notching of the anterior ciliary muscle fibers.

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