

Intraoperative optical coherence tomography-guided scleral suture passage while performing surgery on extraocular muscles

Sir,

Microscope-integrated intraoperative optical coherence tomography (iOCT, 2 mm depth penetration) helps in achieving the optimal results by providing the real-time images of tissue manipulation during the surgery. The iOCT is of great value while performing lamellar corneal surgeries, cataract surgeries, and intraocular lens implantation surgery.^[1,2] It has also been noted to provide an advantage during placement of the glaucoma drainage devices in cadaveric eyes and needling of the blebs.^[3,4] Pasricha *et al.* described the four-dimensional visualizations of the muscle and the scleral wound while passing the scleral sutures.^[5]

A 45-year-old male patient with alternate divergent squint (6/6 vision with no refractive error) was planned squint surgery under peribulbar anesthesia. After passing the sutures and disinserting the rectus muscle, the iOCT was focused at the desired distance to image the bare sclera.

A 6-0 polyglactin suture was passed as is done routinely, and at the same time, the images were captured using the iOCT [Fig. 1a]. Following the passage of the needle, it was left *in situ* and an assessment of the depth of the penetration of the needle was made again [Fig. 2a]. On both

the occasions, the needle path was clearly appreciated. The scleral tissue (yellow arrows) above the needle was clearly visualized along both the horizontal and the vertical scans and by comparing with the adjacent normal thickness (white arrows) of the sclera and choroid (upper hyper-reflective layer indicates sclera and below is the choroid) and the amount of the tissue below the needle; the exact depth of the penetration of the needle was discerned [Figs. 1b and 2b]. However, the needle did show variable hyper-reflectivity leading to the obstruction of the view of the deeper tissue.

To conclude, there is a limited knowledge on the utility of iOCT while performing surgeries on scleral tissue. Thus, iOCT-guided scleral suture passage during strabismus and other retinal detachment surgeries helps in avoiding any vision endangering complications. However, due to the high expense of the equipment, this facility may not be available at all centers and this may be a limitation.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

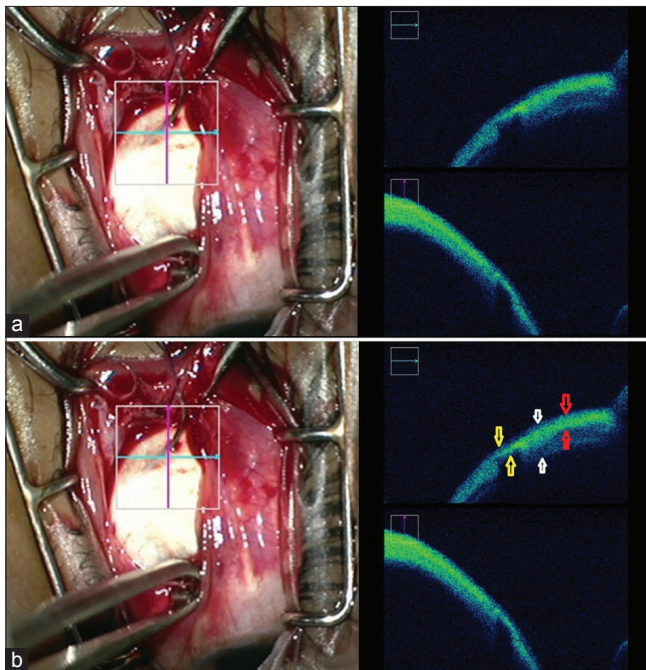


Figure 1: (a and b) Intraoperatively during the passage of scleral sutures, the vertical and horizontal scans revealing the needle track as the scleral tissue above the needle (yellow arrows) can be appreciated definitely, whereas the scleral tissue below the needle is shadowed by the needle. The whole sclero-choroidal tissue is indicated by white arrows and the scleral tissue is indicated by the red arrows

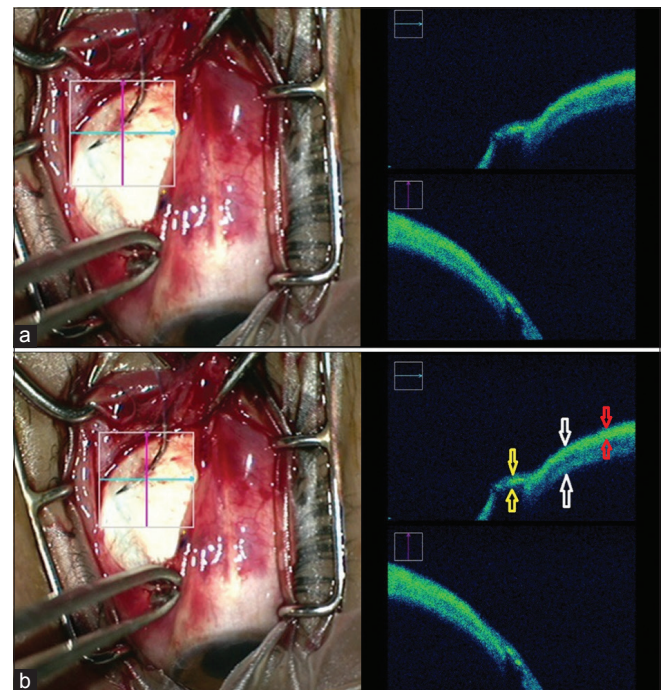


Figure 2: (a and b) After passing the needle, the amount of scleral tissue lifted by the needle can be observed along the horizontal and vertical scans (yellow arrows). The whole sclero-choroidal tissue is indicated by white arrows and the scleral tissue is indicated by the red arrows

Conflicts of interest

There are no conflicts of interest.

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