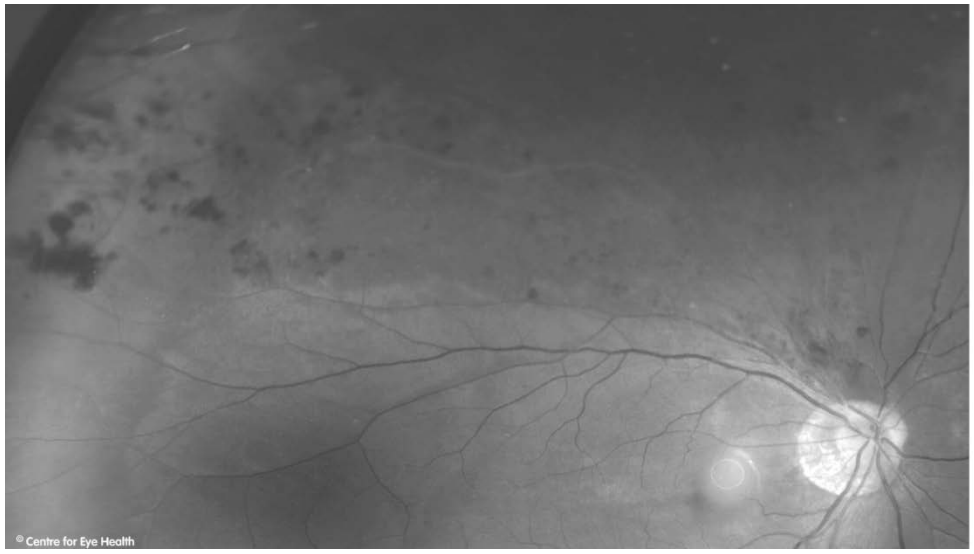
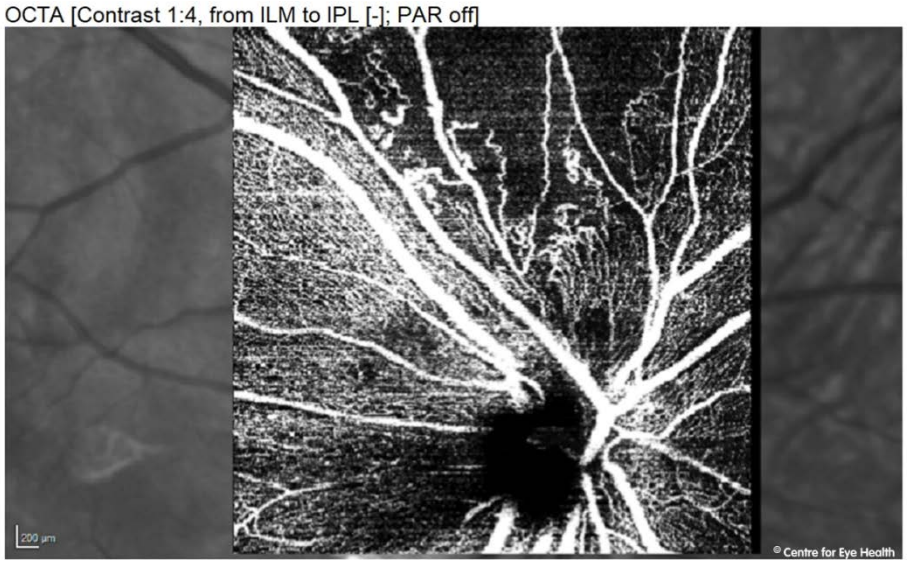
CFEH facebook Cases

CFEH Facebook Case #113

A 70 year old Asian female presented for assessment. She had a superior temporal branch retinal vein occlusion as seen on Optomap imaging. CFEH clinicians used OCT Angiography (OCTA) to assess the retinal vasculature. The image below is taken at the optic nerve and clearly shows a lack of blood flow superior to the disc which has been caused by the vascular occlusion. This case is a good illustration of the clinical information that can be derived from this emerging, non-invasive technology. For more information about how OCTA works, please click on the link.





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ANSWER

OCTA works by repeatedly scanning an area of the retina and identifying changes in reflected B-Scan signals within a volume scan. The movement of erythrocytes through the blood vessels cause variations in the images which is interpreted as motion. In this way the technology allows us to visualize the retinal vasculature when there is blood flowing through the vessel.

If there is no blood flow, or slow blood flow, motion is not detected and the vessel is then not "visible" on OCTA, such as in this case.

While this technology is available commercially, the clinical understanding and applications are still evolving. The main advantages of this technology over traditional fluorescein angiography are that it is non-invasive (and can therefore be undertaken at every examination), it allows selective viewing of superior and deep retinal capillary plexus and choroidal vasculature, and it can potentially generate images with higher contrast and resolution than conventional fluorescein angiography.

The limitations of this technology however mean that while it has great clinical application, it will never completely replace traditional FA. OCTA can't show reduced perfusion or leakage, nor will it detect flow that is too fast or too slow. Additionally, the depth of penetration is limited and there is limited visualisation of small (less than 15µm) vessels.

OCTA is best used in conjunction with other ocular imaging technologies and offers a non-invasive way to assess retinal vasculature however, the more invasive fluorescein angiogram will still be necessary in some patients.