

Commentary: Retinal pigment epithelial leak identification in central serous chorioretinopathy: Is fundus fluorescein angiography a must?

Central serous chorioretinopathy (CSCR) is known to be a self-limiting disease (especially first episode) with resolution within 1–3 months. Treatment is warranted in chronic cases and in acute cases where faster symptomatic resolution may be necessary for professional needs. Focal laser photocoagulation (FLP) of retinal pigment epithelium (RPE) leaks is known to cause early resolution of subretinal fluid (SRF). This is probably due to stimulation of RPE pump and/or adjacent RPE cells sealing the defects. Precise leak identification requires invasive fundus fluorescein angiography (FFA), which is considered as a gold standard imaging modality. However, there are scenarios where FFA is better avoided, for example, pregnancy and chronic kidney disease.

In a study published within current issue of the Indian Journal of Ophthalmology, authors identified a hypopigmented spot (HPS) on funduscopy in 40 out of 50 eyes (80%) having acute CSCR (A-CSCR).^[1] This HPS coincided with leak site on FFA in 38 out of 40 eyes (positive predictive value of 95%) and thereby authors suggested that one can possibly treat CSCR with FFA-free FLP to HPS site, if present. While implementing this into clinical practice, one should also keep in mind choroiditis as a possible differential diagnosis of A-CSCR as HPS may masquerade choroiditis lesion on funduscopy. Presence of dark-spot sign within fibrinous lesions resembling HPS has been shown to correspond with CSCR leak on FFA and can be a useful biomarker to clinically differentiate A-CSCR from choroiditis on funduscopy alone.^[2] Though funduscopy presence of HPS may help in bypassing imaging modalities required for FLP in CSCR and reduce the treatment cost, it is interesting to note that in aforementioned Indian study, HPS and leak site did not correlate in two eyes, while 10 out of 50 (20%) eyes did not have HPS and underwent FFA-guided FLP.^[1] Absence of HPS on funduscopy has very low negative predictive value and should not be relied upon solely for diagnosis and management of CSCR.

In the absence of HPS, various other non-invasive imaging modalities can be helpful for performing FFA-free FLP in CSCR. Optical coherence tomography (OCT)-based study identified hyporeflective “vacuole” sign overlying on all RPE defects and corresponding to RPE leaks on FFA with high predictability.^[3] Additionally, enhanced depth imaging/swept-source OCT in CSCR can provide information of underlying choroidal vascular changes associated with pachychoroid spectrum, which may help in better management. Autofluorescence (AF) imaging-based study demonstrated small and well-defined hypo-AF area corresponding to leak point in 93% of A-CSCR cases.^[4] Optical coherence tomography angiography (OCTA) showed thinner vessel density of choriocapillaris at the leak site in study eyes with A-CSCR.^[5] Multicolor imaging identified focal leaks in 84% eyes compared to 97% eyes on FFA in CSCR patients.^[6]

Authors suggested that the presence of HPS on funduscopy could possibly be due to RPE disintegrity at leak site.^[1] This HPS could also be due to fibrin egress from hyperpermeable choroid into subretinal space following possible large RPE blowouts at leak site.^[3]

Conventional FLP in CSCR is applicable only to extrafoveal leaks and is also known to be associated with possible complications such as paracentral scotoma, laser scar enlargement, and choroidal neovascularization. To minimize them, various other methods of treating A-CSCR have also been explored, which can be useful even for subfoveal/juxtafoveal leaks. These include subthreshold photopulse laser (green/yellow), half-fluence/half-dose photodynamic therapy, and mineralocorticoid antagonists.^[7]

Future studies can also correlate fundoscopic presence of HPS with underlying retinochoroidal alterations and thereby selection of an appropriate and effective therapy among various options available in managing acute/chronic CSCR. It would also be better if future studies can correlate appearance of HPS with leak pattern in CSCR (acute-ink blot/smoke stack/minimally enlarging spot, chronic-diffuse oozing).^[8] These may help in better prognostication and management.

FFA is considered gold standard in diagnosis and management of CSCR. The study published in current issue of Indian journal of Ophthalmology provides a new method for leak identification (presence of HPS having 95% positive predictive value) by non-invasive method and validates the finding by performing FLP at HPS site leading to CSCR resolution.^[1] However, in the absence of HPS, FFA-free FLP can still be possible using combination of several aforementioned non-invasive imaging techniques.^[3-6]

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