

Commentary: Smoke stack leak on indocyanine green angiography in acute central serous chorioretinopathy

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The pathophysiology of central serous chorioretinopathy (CSCR) involves multiple mechanisms that ultimately lead to widespread choroidal circulatory abnormalities and subsequent retinal pigment epithelial (RPE) disturbances. Angiography of retinochoroidal vascular system is very important in the diagnosis and management of CSCR.

Smoke stack leakage (SSL) is an important finding in fluorescein angiography (FA) of CSCR cases, the mechanism of which can be explained by an increased concentration of protein in the subretinal fluid. However, indocyanin green angiography (ICGA) does not typically show SSL in acute CSCR.

The work by Ayachit *et al.*^[1] is appreciated for the documentation of a rare finding, i.e., SSL in ICGA in acute CSCR cases. The explanations for the finding given by them, e.g., possible presence of an RPE microrip or vigorous leakage from choriocapillaris is well taken and supported by literature. The phenomena of RPE microrip or RPE blow out was explained by Goldstein *et al.*^[2]

However, it is noteworthy that this is not the first report of its kind as claimed by the authors. Piccolino *et al.* has demonstrated the smoke stack appearance in ICGA in acute CSCR.^[3]

Spectral domain OCT imaging helps to identify RPE microrip. There have been mentions about other possible mechanisms for hyperpermeability and leakage in chronic CSCR in recent literature, some of which can be pondered in cases of CSCR who are presenting early. Prakash *et al.* has mentioned about occult PEDs.^[4] Teussink *et al.* have mentioned about the role of reduced blood perfusion and ischemia in the choriocapillaries, demonstrated in OCTA, which may be surrounded by reactive hyperperfusion which leads to increased hydrostatic pressure within the fenestrated choriocapillaris.^[5] This along with chronic hypoxic damage may lead to disintegrity in the continuity of RPE leading to leakage of subretinal fluid. There has been mention about RPE degeneration by Hyashi *et al.*^[6] Hypoperfusion and vasodilation of choriocapillaries has been mentioned by Gajdecka *et al.*^[7] There are recent publications regarding choroidal vascularity index in CSCR, which may throw some light on the exact mechanism of this rare finding.^[8]

Finally, SSL in ICGA in acute CSCR is a rare finding and its documentation and discussion about possible mechanisms among peer group enriches the collective academical knowledge.

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