Central Serous Chorioretinopathy Workup

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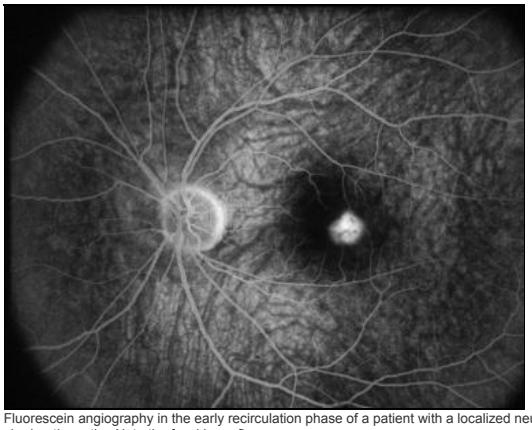
Laboratory Studies

Laboratory tests, in general, are not helpful in the diagnosis, although a recent case report identified an elevated level of plasminogen activator inhibitor 1 in the serum of patients with CSCR.

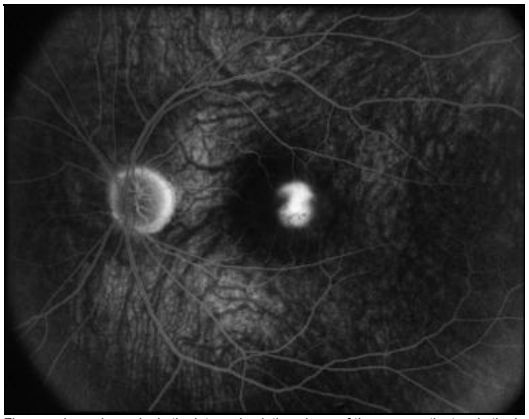
Imaging Studies

Optical coherence tomography (OCT) reveals many aspects of the pathophysiology of central serous chorioretinopathy (CSCR), ranging from subretinal fluid, pigment epithelial detachments, and retinal atrophy following chronic disease. OCT is especially helpful in identifying subtle, even subclinical, neurosensory macular detachments. Spaide correlated lipofuscinoid deposition of material in CSCR that might mimic vitelliform lesions in pattern dystrophies.[32] OCT showed accumulation of this material on the outer surface of the retina in neurosensory detachments.

FA of classic CSCR shows one or more focal leaks at the level of the RPE. The classic "smokestack" appearance of the fluorescein leak is seen only in 10-15% of cases. FA of diffuse retinal pigment epitheliopathy demonstrates focal granular hyperfluorescence corresponding to window defects and blockage caused by RPE atrophy and clumping with one or more areas of subtle continued leakage.[17]



Fluorescein angiography in the early recirculation phase of a patient with a localized neurosensory detachment in the macula from central serous chorioretinopathy. Note the focal hyperfluorescence.



Fluorescein angiography in the late recirculation phase of the same patient as in the image above. Note the distribution of leakage of fluorescein dye within the neurosensory detachment.

ICG angiography has shown hypofluorescent areas early in the angiogram followed by late hyperfluorescence and leakage in choroidal vasculature. Often, multiple areas of leakage are seen on ICG angiography that are not evident clinically or on FA. According to some researchers, characteristic mid phase findings on ICG angiography allow differentiation from occult choroidal neovascularization in older individuals. Multiple patches of hyperfluorescence presumably are due to choroidal hyperpermeability, which, in later phases, results in silhouetting or negative staining of larger choroidal vessels.

Newer technology to evaluate the retina is available. Ooto et al showed that adaptive optics scanning laser ophthalmoscopy is useful in evaluating cone abnormalities associated with visual acuity loss in eyes with central serous chorioretinopathy.[33]

Other Tests

Multifocal electroretinography has been used to identify focal regions of decreased retinal function, even in asymptomatic or clinically inactive eyes. Chappelow and Marmor first described the persistently reduced focal electrical responses on multifocal

electroretinography in eyes with resolved CSCR.[34] Furthermore, investigators, including Lai et al, are using multifocal electroretinography as a means of assessing the efficacy and safety of new treatment modalities for CSCR.[35]

Microperimetry (using the Nidek MP-1 microperimeter) has also shown that, despite clinical resolution of CSCR, there is lower retinal sensitivity in the macula even once visual acuity returned to 20/20. Ojima et al showed that areas of reduced sensitivity were typically focal and localized to clinically apparent regions of irregular RPE. Fixation studies showed stability of central fixation.[36, 37]

Treatment & Management

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