Supplementary Online Content


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This supplementary material has been provided by the authors to give readers additional information about their work.
Fundus photos

**eFigure 1. Color Photos of the Posterior Pole**

These are the fundus photos of the posterior pole of the right eye (OD) and left eye (OS) which were seen in figure 1, now slightly enlarged for easier viewing. There is normal shape, color, and contour to each optic disc. The cup:disc ratio is 0.2 bilaterally. The macula, vessels, and visualized retina are normal. Because mitochondrial diseases can present and/or be associated with potentially occult optic atrophy and pigmentary retinopathy, routine fundoscopy is recommended in the evaluation of these patients.

**eFigure 2. Wide-Angle Peripheral Retina Photos**

These are wide-angle green/red laser scans of the peripheral retina in the right eye (OD) and left eye (OS). The tigroid (striped) appearance in the images is due to visualization of the underlying choroidal vasculature. No abnormalities were noted.
eFigure 3. Fundus Autofluorescence Photos
These are fundus autofluorescence images of the right eye (OD) and left eye (OS), which are obtained by sending a strong flash of light into each eye, and then taking a photo of any subsequently fluorescent pigments. The optic nerve head and vessels have no background autofluorescence (and/or block the retina), and therefore appear dark. Pigmentary retinopathies are often associated with a relative excess or loss of lipofuscin, a fluorescent metabolic byproduct of retinal pigment epithelium (RPE) metabolism. Therefore, clumps or patches of hyper- or hypo-fluorescent signal represent RPE abnormalities. This patient had normal autofluorescence imaging.
**eFigure 4.** Initial Head CT Images at the Level of the Frontal Lobes
Initial Head CT and interval 2 month Head CT showing interval development of a new right frontal hypodense lesion.

**eFigure 5.** Initial Head CT Images at the Level of the Occipital Lobes
Initial Head CT and interval 2 month Head CT showing resolution of the initial right medial occipital hypodensity beyond what would be expected for a typical ischemic stroke.
eFigure 6. Hematoxylin and Eosin Muscle Biopsy Stain
This is a hematoxylin & eosin (H&E) stain of the patient’s left gastrocnemius muscle. There is no evidence of necrosis or regeneration to suggest an active myopathy. Fiber size variation and endomysial and perimysial connective tissues are normal. There are no abnormalities in internal architecture, as sometimes seen in mitochondrial myopathies.
**eFigure 7. Succinate Dehydrogenase Muscle Biopsy Stain**

This is a stain for succinate dehydrogenase (SDH), Complex II of the mitochondrial electron transport chain, which was also normal in this patient. Because succinate dehydrogenase is encoded by the nuclear genome rather than by the mitochondrial genome, it is often abnormal in cases with mitochondrial proliferation resulting in “ragged blue” fibers.
eFigure 8. Cytochrome Oxidase Muscle Biopsy Stain
This is a stain for cytochrome oxidase, Complex IV of the mitochondrial electron transport chain, which shows at least 3 fibers with absent staining (*) and many other fibers with pale/reduced staining (#) likely representing type 2b fibers (confirmed on ATPase 4.6 staining).
eFigure 9. ATPase at pH 4.6 Muscle Biopsy Stain
This is a stain for ATPase at pH 4.6, the enzyme which catalyzes the deposition of ATP into ADP and a free phosphate group. The ATPase stain can be performed at various pH levels to determine muscle fiber types. At pH 4.6, type 1 fibers are darkest, type 2a fibers are lightest (or not visualized), and type 2b fibers are intermediate-staining (see labels in figure). Most fibers in this section are type 2b fibers, which are predominantly glycolytic fast-twitch fibers.