Debulking Surgery More Likely Than Ketogenic Diet Induces Regression of Lipoma Volume in M.8344A>G Carriers

Abstract:

Keywords: mtDNA, respiratory chain, multiple systemic lipomatosis, ketogenic diet, m.8344A>G.

Letter to the Editor

With interest we read the article by Nadeau et al., 2020 about a 56 years-old female with multiple systemic lipomatosis (MSL) due to the variant m.8344A>G in MT-TK who was reported to have profited significantly from lifestyle interventions with regard to postsurgical lipomas, exercise tolerance, and activities of daily living (Nadeau, E. et al., 2020). Interventions included reduction of calorie and carbohydrate intake, restriction of intake to 2h/24h, physical activity, and meditation (Nadeau, E. et al., 2020). The authors concluded that lifestyle interventions carry the potential of non-surgical treatment of MSL (Nadeau, E. et al., 2020). We have the following comments and concerns.

The main shortcoming of the study is that we do no know what happened to the cervical lipomas between month 60 (surgery) and month 67 (onset of intervention). No sagittal MRI immediately post-surgery was provided. The pre-surgical figures are axial slices which cannot be compared with the sagittal slices. We should know if lipoma volume remained unchanged during the 7 months after surgery, if it increased or if it decreased. Supposing that lipoma volume decreased after surgery, it is comprehensible that the supposed dietary effect was indeed a late postsurgical rather than a dietary effect.

The authors mention that the patient had a normal neurologic exam throughout the first year of her intervention (Nadeau, E. et al., 2020). “They also state „there was no trend towards abnormalities suggestive of a mitochondrial myopathy (Nadeau, E. et al., 2020).” A few lines later, however, they surprisingly state that at the one year time point objective measurements of improvement included „normal muscle mitochondrial function“ suggesting that muscle function was abnormal before (Nadeau, E. et al., 2020). Interestingly, „muscle mitochondrial function“ was assessed by cardiopulmonary exercise testing. We disagree that cardiopulmonary exercise testing is the optimal method to assess muscle function. Thus, we should know if ever creatine-kinase was elevated, a myopathic needle electromyography recorded, or a muscle biopsy carried out showing ragged-red fibers.

Though the ketogenic diet (KD), which was applied to the index patient, has been shown to be beneficial for epilepsy, stroke-like episodes, or migraine in some patients with a mitochondrial disorder (Martikainen, M. H. et al., 2012), other patients may not profit from it (Sort, R. et al., 2013). Furthermore, KD may not only be beneficial but may be complicated by side effects, such as basal ganglia injury (Erickson, J. C. et al., 2003). Presumably, intermittent head tremor, as reported in the index patient, has to be regarded as an extra-pyramidal side effect of the KD.
Overall, this interesting study is not convincing with regard to the anti-lipomatous effect of the KD. More likely than KD, debulking surgery triggered the regression of the lipoma volume.

REFERENCES