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Letters to the Editor

Sporadic centronuclear myopathy with muscle pseudohypertrophy, neutropenia, and necklace fibres due to a *DNM2* mutation

We read with interest the article by Liewluck et al. [1], recently published in Neuromuscular Disorders 2010; 12, 801–804, where the authors describe the presence of "necklace" fibres in a sporadic case of centronuclear myopathy due to *DNM2* mutations. As the authors describe in the article, there were differences between the muscle fibres present in their case and the "necklace" fibres we described in late onset centronuclear myopathies related to *MTM1* mutations [2,3]. In particular, the myonuclei were not adjacent to the "necklace" area, but located in the central part of the muscle fibre.

As an electron microscopy investigation is missing in the study by Liewluck et al., it is not possible to compare the ultrastructural alterations in their case with the peculiar myofibrillar structure of the "necklace" area, which is made up of small and obliquely oriented myofibrils, with an increased density of mitochondria and sarcoplasmic reticulum profiles. Moreover, the internally located nuclei are aligned with the necklace.

We may add that we never observed radiating sarcomeric strands, which are characteristic of DNM2-related centronuclear myopathies, in our series of cases with "necklace" fibres. Therefore, it would be better not to use the word "necklace" in the title and text of this article by Liewluck et al. to avoid any misleading message related to the morphological analysis of centronuclear myopathies.

References

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Response

We appreciate Dr. Romero's comment on our recent article on a patient with muscle pseudohypertrophy and necklace fibers due to a *DNM2* mutation [1]. The term "necklace fiber" was coined by Dr. Bevilacqua et al. to describe fibers in MTM1-centronuclear myopathy (CNM) containing a basophilic ring, or necklace, that shows increased oxidative enzyme activity [2]. In these fibers, most nuclei are aligned near the ring, like beads on a necklace [2]. Of note, similar fibers had previously been described by Waclawik et al. in 1995 in a patient with neonatal onset CNM [3] and recently in a patient with childhood onset RYR1-CNM [4]. In our DNM2-CNM patient, some fibers harbored a similar ring of increased oxidative enzyme activity but the nuclei in these fibers were central rather than beading the necklace [1]. We agree that the ultrastructural analysis of DNM2-necklace fibers is important, but there was no muscle sample available for electron microscopy; however, we venture to guess based on the light microscopic grounds that the narrow myofibrils and the concentration of mitochondria in the necklace region are the same as observed by Bevilacqua et al., even in the absence of nearby nuclei. That these peculiar fibers in our patient with DNM2-CNM are not exactly like those described by Drs. Bevilacqua and Waclawik is indeed worth noting.

References

[1] Liewluck T, Lovell TL, Bite AV, Engel AG. Sporadic centronuclear myopathy with muscle pseudohypertrophy, neutropenia and necklace fibers due to a *DNM2* mutation. Neuromuscul Disord 2010;12:801–4.
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