



Available online at  
**ScienceDirect**  
[www.sciencedirect.com](http://www.sciencedirect.com)

Elsevier Masson France  
**EM|consulte**  
[www.em-consulte.com/en](http://www.em-consulte.com/en)



## Letter to the Editor

### Isolated muscle hypertrophy revealing diffuse large B-cell lymphoma



#### ARTICLE INFO

##### Keywords:

Skeletal muscle lymphoma  
 CNS lymphoma  
 MRI  
 FDG-PET

Diffuse large B-cell lymphoma (DLBCL) is one of the most common forms of non-Hodgkin's lymphoma (NHL) of which extra-nodal involvement represents approximately one third of cases [1]. Muscle involvement is reported in less than 5% of extra-nodal lymphomas [1,2]. We report a case of skeletal muscle (SM) DLBCL, an extremely rare presentation of NHL, with central nervous system (CNS) involvement.

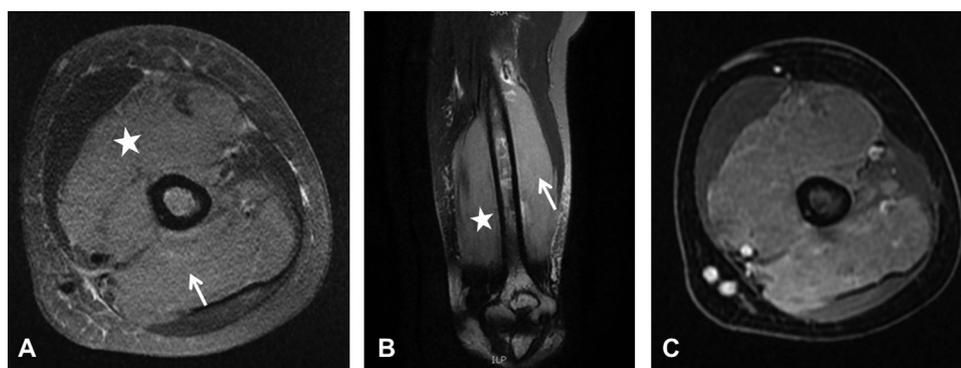
A 71-year-old woman presented to our department with painful muscle hypertrophy of the left arm and asthenia. Medical history was unremarkable. Clinical examination found discrete dysarthria and fluctuating cerebellar ataxia. On admission, there was no clinical evidence of peripheral lymph nodes (LN). The computerized tomography (CT) scanning of the brain was uninformative. Biological workup found a discrete rise in serum lactate dehydrogenase levels at 499 U/L ( $n < 400$  U/L) and normal creatinine phosphokinase. Inflammatory markers were within the normal range. Antinuclear antibodies and DOT assays for inflammatory muscle diseases were negative. There was no evidence for immunodeficiency, a microbial aetiology nor for trauma-induced myositis.

Magnetic resonance imaging (MRI) scan of the arm showed signs of inflammatory hypertrophy of the *biceps brachii* and of the lateral head of the *triceps brachii* (Fig. 1). Muscle biopsy found histological evidence of DLBCL. 18F-fluorodeoxyglucose positron emission tomography (FDG-PET) scan showed intense tracer uptake within the arm and identified inflammatory brain lesions (Fig. 2). Analysis of the cerebrospinal fluid found lymphomatous meningitis and elevated levels of interleukine-10, confirming the diagnosis of DLBCL with CNS involvement.

SM DLBCL is a rare presentation of NHL, accounting for 0.1% of NHL, and is associated with poor prognosis [2]. It is rarely complicated by chronic compartment syndrome [3]. Muscle involvement has mostly been described in the lower limbs and pelvis since haematological dissemination from adjacent LN and bone is usually incriminated [4,5]. Imaging techniques may help clinicians to identify SM lymphoma and adapt diagnostic workup especially in cases in which muscle biopsies cannot be performed [4,6].

MRI characteristics include (but are not limited to) T1-weighted hyperintensity and intermediately increased signal intensity on T2-weighted images with peritumoral oedema involving muscle compartments, neurovascular bundle and extra-muscular structures [5,6]. After injection of contrast media, there is usually a heterogeneous contrast enhancement of the muscle. Stranding in the subcutaneous fat has also been described [4]. Ultimately, FDG-PET not only shows marked focal tracer uptake but is also useful for assessing tumoral burden and staging lymphoma [6,7].

To our knowledge, CNS involvement with SM lymphoma has not been previously reported though it does not seem to be a fortuitous association.



**Fig. 1.** T2-weighted images with fat suppression in the axial (A) and coronal (B) planes showing a global and homogenous hypertrophy with T2-hypersignal of the *biceps brachii* (star) and of the lateral head of the *triceps brachii* (arrow). C) T1-weighted axial image with fat suppression showing heterogeneous muscle enhancement after gadolinium salt injection, and multiple muscle compartment involvement.



**Fig. 2.** FDG-PET showing intense tracer uptake in the *biceps brachii* and *triceps brachii* muscles (\*) as well as of the adjacent humerus bone, tracer uptake in cervical and abdominal lymph nodes, and within the brain.

#### Disclosure of interest

The authors declare that they have no competing interest.

#### References

- [1] Friedberg JW, Fisher RI. Diffuse large B-cell lymphoma. *Hematol Oncol Clin North Am* 2008;22:941–52 [ix].
- [2] Travis WD, Banks PM, Reiman HM. Primary extranodal soft tissue lymphoma of the extremities. *Am J Surg Pathol* 1987;11:359–66.
- [3] Li J-Y, Li C-L, Lu C-K. Skeletal muscle lymphoma presenting with chronic compartment syndrome of leg after trauma. *Case Rep Oncol Med* 2018;2018:4078672.
- [4] Burton E, Schafernak K, Morgan E, et al. Skeletal muscle involvement in B-cell lymphoma: two cases illustrating the contribution of imaging to a clinically unsuspected diagnosis. *Case Rep Radiol* 2017;2017:2068957.
- [5] Suresh S, Saifuddin A, O'Donnell P. Lymphoma presenting as a musculoskeletal soft tissue mass: MRI findings in 24 cases. *Eur Radiol* 2008;18:2628–34.
- [6] Surov A. Imaging findings of skeletal muscle lymphoma. *Clin Imaging* 2014;38:594–8.
- [7] Lee VS, Martinez S, Coleman RE. Primary muscle lymphoma: clinical and imaging findings. *Radiology* 1997;203:237–44.

Julie Merindol<sup>a,b</sup>

Anne Calleja<sup>a,c</sup>

Madleen Chassang<sup>a,d</sup>

Nihal Martis<sup>a,b,\*</sup>

<sup>a</sup> *Université Côte d'Azur, faculté de médecine de Nice, 06200 Nice, France*

<sup>b</sup> *Service de médecine interne, CHU de l'Archet, Nice, 06200 Nice, France*

<sup>c</sup> *Service d'onco-hématologie, CHU l'Archet, 06200 Nice, France*

<sup>d</sup> *Service d'imagerie médicale, CHU l'Archet, 06200 Nice, France*

\* Corresponding author at: Service de médecine Interne, centre hospitalier universitaire l'Archet 1, route de Saint-Antoine de Ginestière, 06200, Nice, France.

E-mail address: [martis.n@chu-nice.fr](mailto:martis.n@chu-nice.fr) (N. Martis)

Available online 27 March 2019