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Letter to the Editor

**A 3-year back and forth between Modic type 1 and 2 on MRI in chronic low back pain**



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Since the classification of intervertebral disc changes in magnetic resonance imaging (MRI) proposed by Modic et al. [1], Modic type 1 aspects (i.e. hyperintensity on T1-weighted and hypointensity on T2-weighted images) have been associated with discogenic low back pain characterized by specific clinical inflammatory-like symptoms [2,3]. The release of pro-inflammatory cytokine is supposed to be responsible for both this clinical presentation and MRI aspect. It is admitted that the Modic type 2 (hyperintensity on T1-weighted and T2-weighted images) and Modic type 3 (hypointensity on both T1-weighted and T2-weighted images) correspond to a progression to fatty involution followed by vertebral endplate bone sclerosis respectively [4]. Although it is common to observe mixed aspects of intervertebral disks having a combination

of Modic type 1 and type 2, it is unusual to observe a change from a type 2 back to a type 1 aspect [5]. We report here the evolution of a patient with intervertebral disk lesions that changed from a Modic type 2 to a type 1 aspect and then back to a Modic type 2 aspect over 3 years.

An obese (body mass index 30 kg/m<sup>2</sup>) 38-year-old woman with a L4–L5 discectomy for low back pain and sciatica 3 years earlier was hospitalized for worsening chronic low back pain. One year before, she had a lumbar spine MRI scan that showed a Modic 2 aspect of the L4–L5 intervertebral disk (Fig. 1) [6,7]. A further MRI scan was performed because of this clinical change and the MRI aspect of the L4–L5 disk was now a Modic 1 (Fig. 1). Given this unusual evolution and despite no biological abnormalities including white blood cell count, sedimentation rate and C-reactive protein serum levels, a radio-guided intervertebral disc biopsy was performed and intervertebral disc infection was excluded by histology and bacteriology exams. Under medical treatment including bracing for a month, a good clinical outcome occurred within a few weeks with a return to work thereafter. One year later, a further MRI scan showed the return to a Modic type 2 aspect of the L4–L5 disk (figure) without any change in the residual low back pain.

We show here an unusual case of intervertebral disk MRI abnormalities going back and forth from Modic type 2 to type 1 over a three-year period, accompanying a transient increase of



**Fig. 1.** Modic type 2: hyperintensity on T1-weighted (A 2015, A 2017) and T2-weighted images (B 2015, B 2017), and Modic type 1: hypointensity on T1-weighted (A 2016) and hyperintensity on T2-weighted images (B 2016) at the L4–L5 level on lumbar magnetic resonance imaging.

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clinical symptoms in the course of chronic low back pain. Infectious aetiology was clearly ruled out by extensive investigations. No particular clinical, demographic or biological features were observed. This observation may lead to a rethink of the current paradigm of progressive and irreversible progression of intervertebral disk lesions or else the pathological meaning of the different stages of the Modic classification.

We suggest that MRI assessment of the lumbar spine in circumstances of worsening chronic low back pain in patients with an identified Modic type 2 aspect might be of interest for better understanding of these changes [8] and addressing pain with specific management [9,10] which is still to be determined.

#### Disclosure of interest

The authors declare that they have no competing interest.

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