



## LETTER

# Lumbar interspinous bursitis in a patient with polymyalgia rheumatica/giant cell arteritis detected by musculoskeletal ultrasound: a case report

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Polymyalgia rheumatica (PMR) is a rheumatic disease characterised by inflammatory pain and stiffness in the neck, shoulders and pelvic girdles. Recently, interspinous bursitis at the cervical and lumbar spine has been noted as a finding of PMR.<sup>1</sup> Imaging findings of interspinous bursitis have been reported using 18F-fluorodeoxyglucose (FDG)-positron emission tomography/CT (PET/CT) and MRI,<sup>2,3</sup> and their concordance with the symptoms of PMR remains controversial. Here, we report a case of PMR/giant cell arteritis (GCA) evaluated by musculoskeletal ultrasound (MSUS) along with other imaging modalities for lumbar interspinous bursitis.

A patient in her 60s was admitted to our hospital for evaluation of a 2-week history of worsening low back pain with fever. Six months earlier, she had been diagnosed with PMR, fulfilling the EULAR/ACR 2012 criteria,<sup>4</sup> with inflammation of biceps tendon, subscapularis tendon and subacromial/subdeltoid bursa of the shoulder, as well as, suprapatellar bursa and medial/lateral collateral ligament of the knee. She had once improved with prednisolone (started at 15 mg/day and reduced to 7.5 mg/day). On admission, tenderness was noted in the central lumbar region. Laboratory tests revealed white cell counts of  $7.2 \times 10^9/L$ , C reactive protein of 12.62 mg/dL and erythrocyte sedimentation rate of 80 mm/hour. Contrast-enhanced MRI revealed findings suggestive of lumbar interspinous bursitis at L2-5 (**figure 1A**). MSUS also showed hypoechoic area with power Doppler signals at the expected anatomic site of the bursa<sup>3</sup> (**figure 1B**). After excluding infection by fine-needle aspiration, we diagnosed her

with lumbar interspinous bursitis associated with PMR. She subsequently had headache, and a temporal artery biopsy revealed GCA. PET-CT scan showed FDG uptake between the lumbar spinous processes (**figure 1C**) with no findings of large vessel vasculitis. Her symptoms relieved by increasing prednisolone to 20 mg/day (equivalent to 0.5 mg/kg) and tocilizumab. Six months later, she was in remission and follow-up imaging studies were performed. Contrast enhancement of MRI and power Doppler signal of MSUS were resolved (**figure 1D,E**), while PET/CT showed residual FDG uptake in the interspinous bursae (**figure 1F**). Thereafter, she has tapered prednisolone dosage with monitoring by MSUS and has not had any relapses.

In the present case, lumbar interspinous bursitis associated with PMR/GCA was evaluated by MSUS, MRI and PET/CT. It is reported that MRI and PET/CT findings of bursitis often persist after clinical improvement,<sup>2,5</sup> which may be based on their sensitivity to postinflammatory changes. In contrast, MSUS may better reflect the disease activity of bursitis.<sup>5</sup> In our patient, the MSUS power Doppler signal corresponding to lumbar interspinous bursitis improved after her symptoms stabilised.

Currently, MSUS is widely used for the assessment of PMR.<sup>1</sup> Compared with MRI and PET/CT, MSUS has the advantage of evaluating multiple sites in a shorter time. Moreover, this modality is easily repeatable with no exposure to radiation or MRI contrast media. Although the diagnostic value of MSUS findings in shoulder involvement is well defined,<sup>4</sup> its utility in evaluating interspinous bursitis

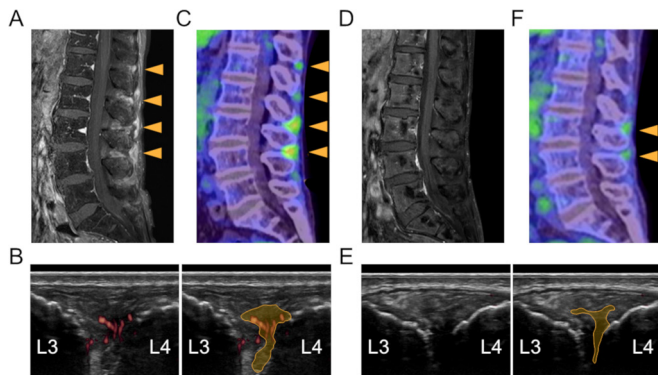


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**Figure 1** Imaging findings of lumbar interspinous bursitis in the patient before (A–C) and after treatment (D–F). (A, D) Gadolinium contrast-enhanced T1-weighted MRI. Contrast effect is seen around the lumbar interspinous process before treatment (arrowhead). (B, E) MSUS imaging. A hypoechoic region with power Doppler signals is seen between the lumbar L3/4 spinous process before treatment, anatomically consistent with the bursa (yellow shaded area on the right panel). MSUS was performed using Noblus (Hitachi Medical, Tokyo, Japan) with a linear EUP-L65 probe in colour Doppler mode at a frequency of 18 MHz. (C, F) PET/CT imaging.  $^{18}\text{F}$ -fluorodeoxyglucose-uptake are seen between the lumbar spinous processes both before and after treatment (arrowhead). MSUS, musculoskeletal ultrasound; PET/CT, positron emission tomography/CT.

has not been clarified. There has been only one report of MSUS findings in cervical interspinous bursitis,<sup>6</sup> but no report on lumbar interspinous bursitis. If the MSUS finding of interspinous bursitis accurately reflect the activity of PMR, it could be a helpful tool for disease monitoring as well as diagnosis in PMR patients with back pain. Therefore, further investigation on the MSUS findings of interspinous bursitis is warranted.

In conclusion, this case suggests the importance of interspinous bursitis as a lumbar involvement in PMR, and the usefulness of MSUS in assessing disease activity. Focusing on interspinous bursitis may contribute to identifying the inflammatory locus and optimal management of patients with PMR.

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