

## CASE IMAGE

# Inclusion body myositis in an older patient following a fall

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## Key Clinical Message

After experiencing a fall, an 82-year-old woman developed progressive loss of lower limb strength and was diagnosed with inclusion body myositis. Although falls and muscle weakness are often regarded as consequences of aging, inclusion body myositis should be considered in a patient with a history of multiple falls.

## KEYWORDS

amyotrophic lateral sclerosis, muscular dystrophy, polymyositis, spondylotic myelopathy

## 1 | CASE

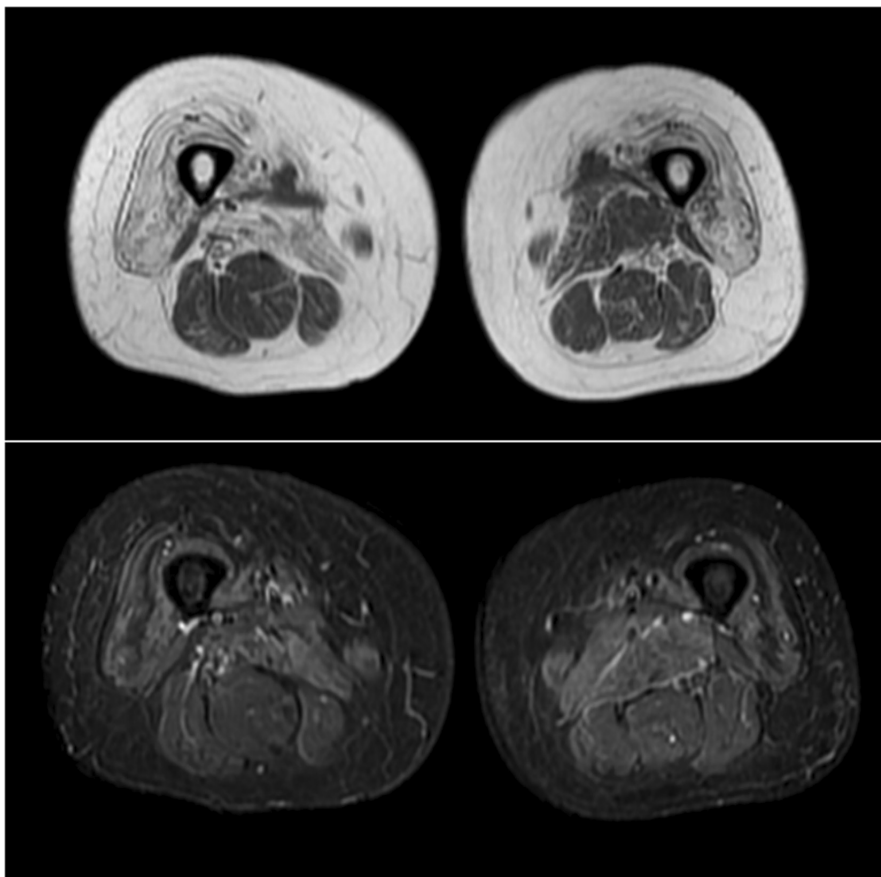
An 82-year-old woman with a history of multiple falls was transferred to our hospital after experiencing her most recent fall. Despite the absence of significant trauma, she was admitted to our hospital for follow-up observation because she lived alone. When reporting her medical history, she mentioned experiencing a difficulty in raising the right leg for the past 10 years, and recent, gradual difficulty in raising the left leg. She had started walking with a cane five years prior, eventually transitioning to the use of a walker. She also reported experiencing a decrease in grip strength over several years, noting that it did not interfere with her daily life. She had no family history of muscular disease, and physical examination of the lower extremities revealed marked muscle weakness limited to the bilateral quadriceps muscles. She was right-handed, with a grip strength of 10.6 kg on the left

and 6.6 kg on the right. She had decreased strength in the deep finger flexor muscles. Further examination revealed a lack of sensory disturbances or inflammatory responses with only slightly elevated creatine kinase (CK) levels (300 U/L), and the tests for anti-ARS, anti-Mi2, anti-TIF-1 $\gamma$ , and anti-RNP antibodies were negative. Femoral MRI revealed severe atrophy of the quadriceps muscles (Figure 1), although no abnormalities were observed on spinal MRI or abdominal CT.

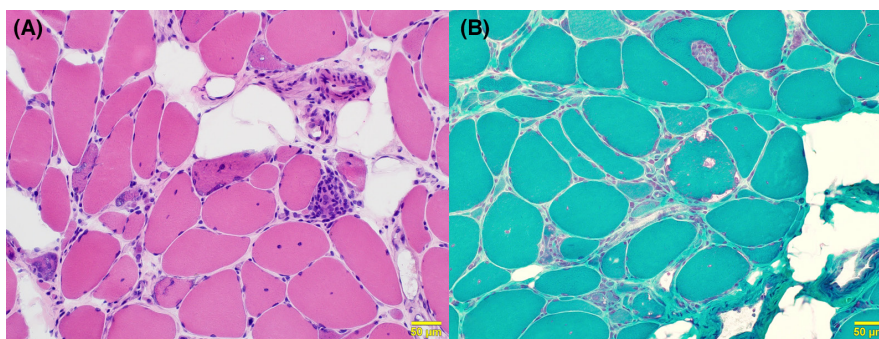
After ruling out nerve root disorder, femoral neuropathy, and polymyositis, we referred the patient to a specialized facility. Electromyography of the biceps brachii and vastus medialis performed at the referring facility revealed myogenic changes. Biopsy of the biceps brachii showed endomysial inflammation; myofibers of variable sizes, with scattered degeneration, regeneration, and necrosis; mononuclear cell infiltration of non-necrotic muscle fibers; and fibers with rimmed vacuoles. Based on these

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**FIGURE 1** Femoral MRI. Upper: T1-weighted, Lower: STIR sequence. Atrophy of bilateral quadriceps muscles and fat infiltration are shown. MRI, magnetic resonance imaging; STIR, short tau inversion recovery.



**FIGURE 2** Muscle pathology. (A) Hematoxylin and eosin staining. The length of the yellow bar in the image indicates 50 µm. There is moderate to marked variation in fiber size. A few necrotic and scattered regenerating fibers are seen. There are scattered fibers with internal nuclei. Endomysial mononuclear cell infiltration surrounding and sometimes invading non-necrotic fibers is seen in scattered fascicles. (B) Modified Gomori Trichrome staining. The length of the yellow bar in the image indicates 50 µm. There are scattered fibers with rimmed vacuoles.

findings, the patient was diagnosed with inclusion body myositis (IBM) (Figure 2). One year after the initial diagnosis, the disease has not progressed, and she continues to live at home.

## 2 | DISCUSSION

IBM is classified as an idiopathic inflammatory muscle disease, mainly developing in those aged 50 years or older

and following a slowly progressive course. Thigh IBM is characterized by edema, atrophy, and fat infiltration in the anterior compartment with relative preservation of the medial and posterior compartments on MRI, and muscle biopsy is required for a definitive diagnosis.<sup>1</sup> The mean duration from onset to diagnosis of IBM is 5.2 years, as the symptoms (e.g., falls, muscle weakness) are often overlooked.<sup>2</sup> Falls and muscle weakness are common problems in older adults and often regarded as normal consequences of aging. In the present case, despite the

typical course of the disease, 10 years had passed before diagnosis. Our patient's case emphasizes the need for multifactorial fall risk assessment in community-dwelling older adults who report recurrent (two or more) falls, have difficulty walking or balancing, or visit the emergency department after a fall.<sup>3</sup> When a patient has a history of multiple falls or significant weakness of the quadriceps muscles, IBM should be suspected.

#### AUTHOR CONTRIBUTIONS

Haruma Saiki and Hiroki Isono: Prepared, organized, and edited all aspects of the manuscript. Contributed equally towards preparing the manuscript and approved the final version before submission. Kousuke Ihara, Keisuke Kondo, Momoko Isono: Participated in patient care, contributed to diagnosis, and approved the final version before submission. Akira Shiraoka contributed to diagnosis and approved the final version before submission.

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#### CONFLICT OF INTEREST STATEMENT

None declared.

#### DATA AVAILABILITY STATEMENT

The data availability statement is not required because no datasets were generated or analyzed during case management.

#### ETHICS STATEMENT

All procedures were performed in accordance with the ethical standards. The examinations were performed in accordance with the approved principles.

#### PATIENT CONSENT STATEMENT

Published with written consent of the patient.

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#### REFERENCES

1. Dion E, Cherin P, Payan C, et al. Magnetic resonance imaging criteria for distinguishing between inclusion body myositis and polymyositis. *J Rheumatol*. 2002;29:1897-1906.
2. Needham M, Corbett A, Day T, Christiansen F, Fabian V, Mastaglia FL. Prevalence of sporadic inclusion body myositis and factors contributing to delayed diagnosis. *J Clin Neurosci*. 2008;15:1350-1353.
3. Panel on Prevention of Falls in Older Persons, American Geriatrics Society and British Geriatrics Society. Summary of the updated American Geriatrics Society/British Geriatrics Society clinical practice guideline for prevention of falls in older persons. *J Am Geriatr Soc*. 2011;59:148-157.

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