



Determining the management of sciatica

Hiroki Iwai^{1,2}, Hirohiko Inanami^{1,2}, Hisashi Koga^{1,2}

¹Department of Orthopaedic Surgery, Inanami Spine and Joint Hospital, Higashishinagawa, Shinagawa-ku, Tokyo, Japan; ²Department of Orthopaedic, Iwai Orthopaedic Medical Hospital, Minamikoiva, Edogawa-ku, Tokyo, Japan

Correspondence to: Hisashi Koga. Department of Orthopaedic, Iwai Orthopaedic Medical Hospital, 8-17-2 Minamikoiva, Edogawa-ku, Tokyo 1330056, Japan. Email: hkoga0808@gmail.com.

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Sciatica is a common disease of middle age, but the management strategy has not yet been standardized. This is the reason for the article written by Ramaswami *et al.* (1). However, the determination of the management strategy seems to be too hasty from the information presented in this article.

First, the relevant dermatome of the lower lumbar nerve roots has to be identified, and the pain region confirmed in the left leg. If the pain is originating from the left L4/5 lumbar disc herniation (LDH), the left L5 nerve root is compressed. Thereby, the pain generally occurs mainly in the lateral part of the thigh and lower leg and/or medial part of the dorsum of the foot. However, Mr. Winston only complained of severe sharp and dull pain that originated in his left buttock and radiated to the dorsolateral aspect of his left thigh. His pain region did not completely coincide with a typical L5 dermatome. We sometimes experience the discrepancy of disturbed nerve root and the pain region. We therefore have to confirm that the pain originates from the compression of the corresponding nerve root. A nerve root block is the only examination that can clarify the discrepancy. If a similar radiating pain is observed during L5 nerve puncture or the pain resolves after lidocaine injection, it is strongly suggested that the pain originates from the left L4/5 LDH. In the absence of these two observations, other diseases such as superior cluneal nerve entrapment neuropathy, gluteus medius muscle pain, piriformis syndrome, and sacroiliac joint pain also merit consideration. Due to lack of space to explain each disease, we only discuss the possibility of misdiagnosis. To know the details of each disease, the readers can read the reference (2).

Second, even though the pain originates from the

L4/5 LDH, the magnetic resonance imaging (MRI) findings need to be interpreted with caution. Presence of “left L4/5 LDH” did not explain the clinical manifestation. For example, the size of the herniated disc is a predictive factor of operative outcome. Carragee *et al.* reported that a longer anteroposterior disc length as well as larger ratios of disc to canal area were significant independent predictors of a good operative outcome ($P < 0.0001$ both) (3). Not only the size but also the type of LDH is important for natural regression. Komori *et al.* reported that disappearance of herniated nucleus pulposus was seen frequently in cases of migrating LDH (4). Therefore, at least the size and type of LDH have to be determined before determining the management strategy. In case of small and/or migrating LDH, initially a combination treatment of physical therapy and medication (except for pregabalin) may be selected, as mentioned by Dr. Weinstein. Although highly migrating LDH has a tendency to resolve spontaneously, the process takes several months (*Figure 1*) (5). For early resolution of pain, enabling the patient to return to his job, surgery should be considered.

Mr. Winston is a 50-year-old bus driver. We also need to consider the presence of coincident spinal canal stenosis or calcified LDH (also known as “hard disc”). For the former case, the management strategy for lateral recess stenosis needs to be followed (this is also a controversial issue, and we will not discuss it here). In the latter case, spontaneous regression of calcified LDH cannot be expected, but the operative difficulty is greater than that in the case of non-calcified LDH. Because the calcified lesion often adheres to the nerve root and dura mater, the neural tissues are easily injured by rough operative procedures. We therefore

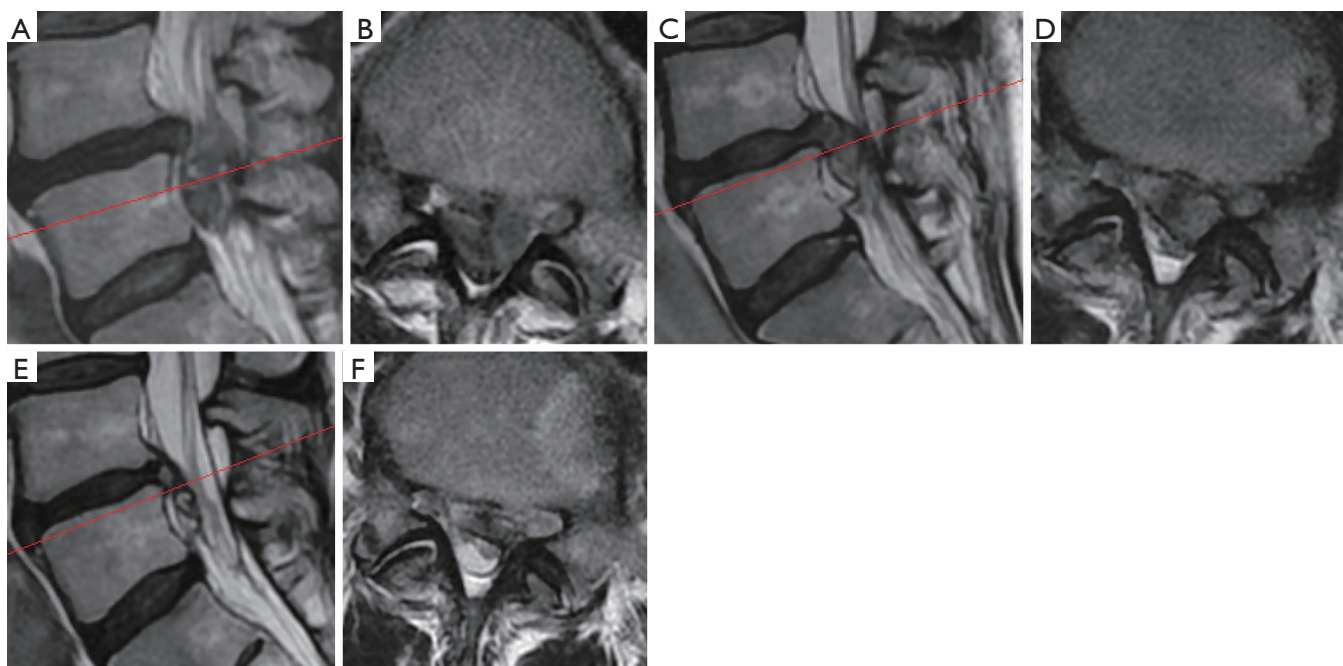


Figure 1 Sequential changes in MRI findings of large migrating LDH at the L4/5 disc level. MRI was performed on November 11, 2015 (A,B), March 6, 2016 (C,D), and July 20, 2016 (E,F). Red lines in sagittal views (A,C,E) indicate the scanning positions of the corresponding axial views (B,D,F). At the patient's request, conservative treatment with pregabalin, tramadol, and NSAIDs had been continued even after July 20, 2016, in spite of persistent pain and numbness. LDH, lumbar disc herniation; MRI, magnetic resonance imaging; NSAIDs, nonsteroidal anti-inflammatory drugs.

have to perform computed tomography (CT) especially for elderly patients and/or in cases where a considerable time has elapsed since the diagnosis, so as to avoid the overlooking of the calcified lesion (*Figure 2*).

Assuming that the patient's left L4/5 LDH is relatively large, non-migrating, and non-calcified, lumbar disc surgeries are promising for quick return to his job. However, we still have to discuss which kind of operation is better for this patient. Mr. Winston is highly overweight [body mass index (BMI) =35 kg/m²] and has mild chronic obstructive pulmonary disease (COPD, smoking one pack of cigarettes every day for 22 years). Thickened skin layers of obese patients occasionally disturb a conventional operative procedure such as open and microscopic discectomy, thereby prolonging the operation time. Prolonging the operation may increase the risk during the perioperative and postoperative periods. Moreover, the risks associated with general anesthesia, such as extubation failure, are greater for COPD patients than for those with normal respiratory function. Therefore, if a lumbar discectomy under local anesthesia is performed in a short time, the risks

due to obesity and COPD can be avoided. Percutaneous endoscopic lumbar discectomy (PELD) is a minimally invasive operative procedure that meets these requirements. PELD is performed under endoscopic visualization, and the outer diameter of the endoscope is approximately 7 mm (6). We already have reported the superiority of PELD in obese patients (7). Furthermore, PELD can be performed under local anesthesia (6). In conclusion, if Mr. Winston's condition meets the above-mentioned requirements, PELD should be selected as the surgical treatment.

Although a large number of clinical trials such as the Spine Patient Outcomes Research Trial (SPORT) and meta-analyses provide insight into the management of certain diseases, it is also important to consider the best personalized medical care for each patient based on the differences in conditions, predispositions, and social backgrounds.

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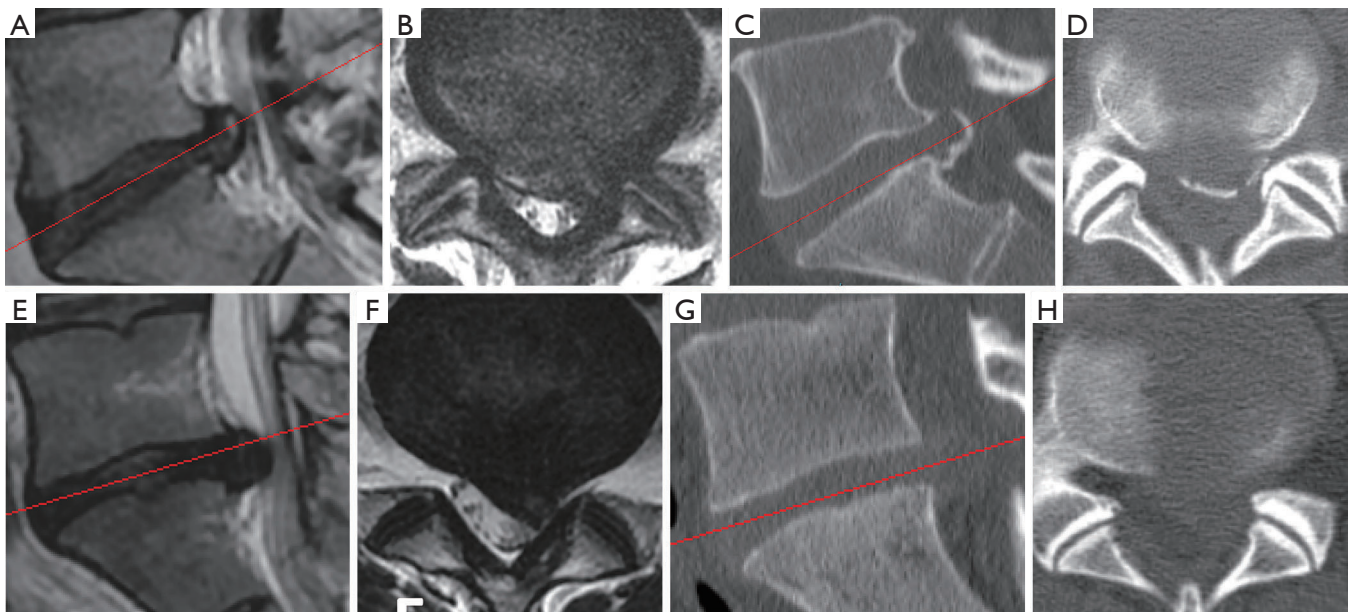


Figure 2 MRI (A,B,E,F) and CT (C,D,G,H) findings of a patient with calcified (A-D) and non-calcified LDH (E-H) at the L5/S1 disc level. Red lines in sagittal views (A,C,E,G) indicate the scanning positions of the corresponding axial views (B,D,F,H). LDH, lumbar disc herniation; MRI, magnetic resonance imaging; CT, computed tomography.

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Footnote

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was obtained from the patient for publication of this manuscript and any accompanying images.

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