Case Report

The age paradox in facet joint syndrome: a case report

Abstract

Patient concerns: A 49-year-old woman diagnosed with scoliosis of T-L spine before came to the rehabilitation department OPD at our hospital due to suffering Chronic left hip pain and low back pain lasting for one to two years. The patient reported pain in the right knee and left hip, with a noticeable pulling sensation. The pain often occurs after prolonged standing or upon waking in the morning. The patient was diagnosed with facet joint syndrome at L4/5 after the whole body bone scan and the Single-photon emission computed tomography examinations. Scoliosis of T-L spine and erosion change of both sacroiliac joints were also diagnosed after evaluating X-ray examination at pelvic and lower limbs. Interferential therapy and low power laser were performed at lumbar and sacroiliac joints.

Lessons: The association between facet joint syndrome and lower back pain should be recognized regardless of the patient's age.

Keywords: low back pain, single-photon emission computed tomography, case report, scoliosis of T-L spine, facet joint syndrome

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Abbreviations: OPD, outpatient department; OA, osteoarthritis; FJS, facet joint syndrome; SPECT, single-photon emission computed tomography; WBBS, whole body bone scan

Introduction

Facet joint syndrome, a kind of chronic spinal pain, accounts for approximately 55% of chronic neck pain, 42% of thoracic spine pain, and 31% of lower back pain.[1–5] While facet joint osteoarthritis is the most common form of facet joint syndrome, its clinical correlation between low back pain and facet joint remains controversial in younger populations.[6–8] The prior study shows no association or statistically significant associations between low back pain and facet joint OA in adults under 60.[5] Despite these findings, we present a case of a 49-year-old female diagnosed with facet joint OA, highlighting the diagnostic complexity and the potential clinical impact of early-onset degeneration in relatively young patients.

Case presentation

This case involves a 49-year-old female presenting with a history of left hip pain lasting for over one year, described as a pulling sensation. The pain is aggravated by prolonged standing and is particularly noticeable upon waking in the morning. She also reports concurrent right knee pain. On physical examination during the initial visit, Manual Muscle Testing of the left thigh revealed a muscle strength grade of 4–5. Laboratory investigations, including Myositis Specific Antibody-16 (MSA-16), were negative for all tested antibodies, suggesting no evidence of inflammatory myopathy or related autoimmune conditions (Table 1).

Table 1 Myositis Specific Antibody-16(MSA). The MSA examination is used to help to identify specific subtypes of muscle inflammation, predict prognosis, and guide treatment.The numbers in the table, which range from 0 to 7, indicate negative values. In this case, we exclude possibility that myositis was the main reason that caused her disease due to the MSA examination.

MSA	Score
Mi-2 alpha	3
Mi-2 beta	5
TIF1 gamma	1
MDA5	3
NXP2	3
SAE1	1
Ku	3
PM-Sc1100	0
PM-Sc175	2
Jo-1	1
SRP	2
PL-7	4
PL-12	2
EJ	3
OJ	2
Ro52	2

Imaging studies provided critical diagnostic insights. X-ray images showed erosive changes in both sacroiliac joints along with thoracolumbar scoliosis (Figure 1 & 2). To further evaluate these abnormalities, a whole-body bone scan and SPECT-CT were performed. Images obtained four hours after intravenous injection of Tc-99m MDP revealed focal increased radiotracer uptake in the left facet joint at the L4/5 level, indicating a likely degenerative or inflammatory process. These findings were consistent with the SPECT/CT correlation (Figure 3 & 4). Based on the integration of clinical presentation and imaging results, the final diagnosis included L4/5 facet joint syndrome, thoracolumbar scoliosis, and bilateral sacroiliac joint erosive changes. The patient was advised to undergo interferential therapy and low-power laser treatment targeting the lumbar spine and both sacroiliac joints, at a frequency of six sessions per month, with continued as-needed use of Acetaminophen for pain control.

Figure 1 Lumbar Spine Anterior-Posterior View. The image reveals thoracolumbar scoliosis and bilateral sacroiliac joint erosion.

Figure 2 Pelvis Anterior-Posterior View**.** The image reveals there are some erosive changes on both sacroiliac joints.

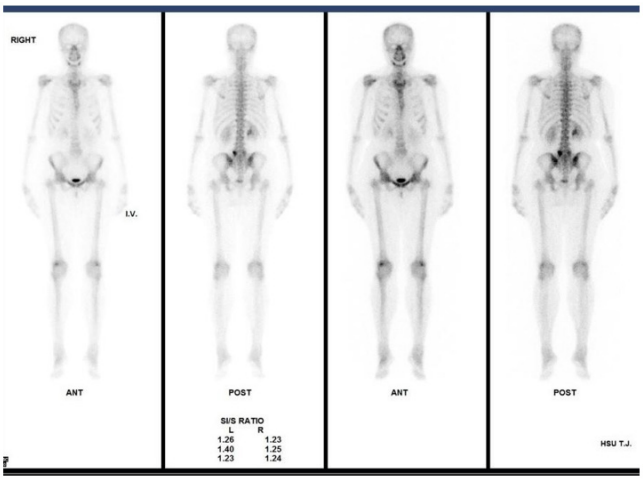

Figure 3 Images of whole body bone scan. The film showed both facet joints of L4/5 vertebrae was seen that the Tc-99m MDP increased uptake. The SI/S ratio is an indicator used in nuclear medicine bone scanning to quantitatively assess sacroiliac arthritis; its normal value is less than 1.3.

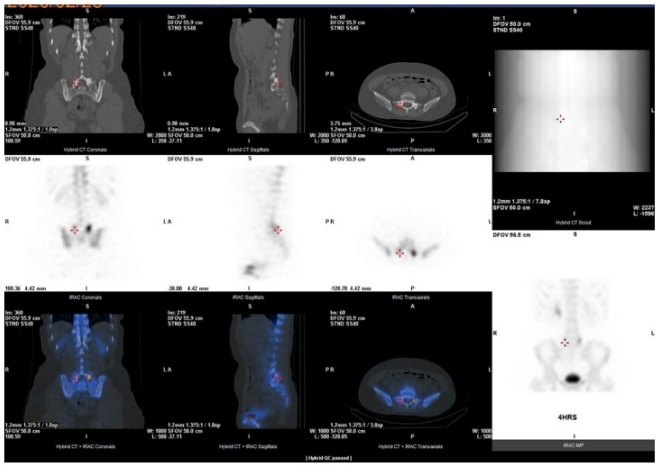

Figure 4 Whole-body Bone SPECT/CT Fusion Imaging. The CT images showed that structural changes characteristic of osteoarthritis, such as sclerosis, are visible in the posterior articular process region of the right L5-S1 area. The fusion images presented that the lesion was in L4/5.

Discussion

The clinical association between facet joint degeneration and lower back pain remains controversial in individuals under 60 years of age. This case presents a 49-year-old woman with a long history of hip and knee pain. Imaging revealed L4/5 facet joint lesions, accompanied by thoracolumbar scoliosis and bilateral sacroiliac joint erosion, indicating multiple sources of pain. This case highlights the diagnostic complexity and clinical significance of early-onset facet joint degeneration in relatively young patients and underscores the importance of advanced imaging studies in clarifying the source of pain.

FJS is a significant clinical challenge in the management of chronic spinal pain.[1,2,4] Diagnosing FJS is complex due to the poor correlation between radiographic findings and clinical symptoms.[2,9] From the aspect of anatomy, the facet joints are the only synovial joints in the spine.[1] Therefore, the degeneration of the facet joints would release inflammatory cytokines, which in turn trigger neuroinflammatory reactions and pain.[10] Facet joint OA is most prevalent at the L4/5.[6] However, the correlation between radiographic OA and low back pain is age-dependent.[5] The prior study found that there is a statistically

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significant correlation between low back pain and facet joint OA in adults over 60.[5] However, there is no association or statistically significant correlation between OA and low back pain in adults under 60.[5,7,8] The diagnostic gap makes our 49-year-old patient, whose clinical presentation of morning stiffness and localized tenderness aligned with the diagnostic criteria for facet joint syndrome particularly noteworthy.

SPECT/CT combines imaging capabilities with anatomical information, enabling precise lesion localization and significantly improving diagnostic sensitivity and specificity compared to SPECT or planar scanning alone.[11–13] The prior study has shown that SPECT/CT could provide significant improvement in the diagnosis of patients with low back pain.[1,14] Another prior study indicated the abnormal lumbar facet joint were seen to uptake more 99mTc labeled bisphosphonates on SPECT.[15] Whole body bone scan (WBBS) is highly sensitive, ranging from 75% to 95%.[16] WBBS provides us to detect bone metastases as early as possible. The prior study indicated that examining both WBBS and SPECT/CT can reduce the possibility of false-negative and increase the possibility of true-positive significantly for patients diagnosed with spinal diseases.[17,18] Therefore, it is very reasonable and helpful to use SPECT/CT for diagnosing FJS, as we did in the case.

In a prior study showed that 81% patients with Autoimmune Inflammatory Myopathies had experienced myalgias in their lives.[19,20] A case report indicated that Pyomyositis of pelvic muscle is a rare cause of LBP.[21] A mild form of idiopathic inflammatory myopathies might be related to sacroiliitis, a form of LBP.[22] Therefore, we took myositis into consideration when we diagnosed her because she presented she had suffered left hip pain and low back pain over a year. She underwent Myositis Specific Antibody-16(MSA) examinations. All of them are under 7, which means all antibodies were negative. Consequently, we excluded the possibility of myositis.

Conclusion

The case that presents early-onset facet joint syndrome can be definitely identified in younger adults through the targeted use of SPECT/CT. When evaluating atypical chronic low back pain in populations under 60, clinicians should utilize SPECT/CT to improve diagnostic sensitivity and actively have MSA examinations to ensure timely and accurate management. Future prospective studies should evaluate the cost-effectiveness and long-term outcomes of incorporating SPECT/CT as a primary diagnostic tool for early-onset facet joint syndrome.

Author contributions

Hung SJ reviewed the literature and contributed to manuscript drafting; Hung SJ and Chang WY analyzed and interpreted the imaging findings; Chang ST were responsible for the revision of the manuscript for important intellectual content and supervised the study and managed the project.

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None.

Conflicts of interest

The authors declare that there are no conflicts of interest.

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