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Proportion of Myofascial Pain Syndrome Among Patients with Diagnosed or Suspected Fibromyalgia: A Pilot Cross-Sectional Study

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Purpose: The present study aimed to investigate the proportion of myofascial pain syndrome (MPS) among patients with definitively diagnosed or suspected fibromyalgia (FM), and to compare patients ultimately diagnosed with MPS and those diagnosed with FM, as well as to describe the clinical characteristics of the MPS group.

Patients and Methods: This retrospective cross-sectional study was conducted at a university hospital. Clinical data were retrospectively extracted from electronic medical records of patients referred with suspected or diagnosed FM between January 2018 and December 2022. Available clinical information was limited to routinely documented data in referral documents and medical records. Patients included those definitively diagnosed with FM, as well as those suspected of FM based on established criteria or on the opinion of a rheumatologist or an FM expert. Final diagnoses were reassessed by one of the authors, who reviewed the original documentation to assess reclassification as MPS, based on regional pain, myofascial trigger points, and taut bands of muscle fibers.

Results: A total of 29 patients were identified as potentially eligible, and 28 were included in the final analysis (mean age, 48.8 years; 28.6% male). Of the 29 patients, 25 (86.2%) were ultimately diagnosed with MPS. Compared with the FM group, the MPS group was older, responded better to local treatments, and reported less fatigue. A substantial proportion of patients with MPS had upper back pain and chronic widespread pain.

Conclusion: In this retrospective record-based study, most patients with diagnosed or suspected FM were ultimately diagnosed with MPS. Although several clinical features distinguished MPS from FM, patients in the MPS group in this referral-based cohort frequently exhibited upper back pain and chronic widespread pain, features typically associated with FM, which may contribute to diagnostic confusion. Careful physical examination and assessment of response to local treatments may improve diagnostic accuracy.

Keywords: chronic widespread pain, differential diagnosis, fibromyalgia, myofascial pain syndrome

Introduction

Fibromyalgia (FM) is a disease characterized by chronic widespread musculoskeletal pain and tenderness known as tender points.[1,2] Although no gold standard exists for the diagnosis of FM, the classification criteria of the American College of Rheumatology are widely used.[2–4] In 2016, revised diagnostic criteria were published; however, these criteria alone cannot exclude other musculoskeletal disorders, and the final diagnosis therefore depends on the clinical expertise of the physician.[5] For this reason, a diagnosis made by a rheumatologist is often regarded as equivalent to the gold standard.[6] Nevertheless, a previous study reported that up to two-thirds of patients presenting with musculoskeletal pain and previously diagnosed with or suspected of having FM by referring physicians, including rheumatologists, are misdiagnosed.[7]

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Myofascial pain syndrome (MPS), one of the most common musculoskeletal disorders, is characterized by regionally distributed pain associated with a hyperirritable spot (myofascial trigger point) in taut bands of muscle fibers, a feature that helps distinguish MPS from FM, which is characterized by widespread, symmetric soft tissue pain without localization to specific muscles.[8] Another important distinction is the favorable response of MPS to local treatments, supporting the concept of MPS as a peripheral pain condition, in contrast to FM, which is commonly described as a predominantly central pain condition, although this concept remains under debate and its underlying mechanisms are considered heterogeneous.[8–10] Despite these distinctions, MPS is frequently misdiagnosed as FM, as is the case with other musculoskeletal disorders mentioned above; however, the proportion of patients with a previous diagnosis or suspicion of FM who actually have MPS has not been well established.[11]

Previous studies have suggested that the diagnostic confusion between MPS and FM arises from similarities in clinical presentation, including myofascial trigger points and tender points, the potential co-occurrence of MPS and FM, and the fact that MPS, although typically considered a regional pain condition, may involve multiple trigger points and broader pain distribution.[12–15] Complicating this further, peripheral nociceptive input, including myofascial trigger points, may contribute to central sensitization in fibromyalgia.[16–21] In such clinical contexts, differentiation between MPS and FM is considered to require careful physical examination.[15] However, the criteria for FM have progressively shifted from an emphasis on physical examination towards a greater reliance on patient-reported symptoms, which may further complicate the distinction from MPS.[2–5,22] Despite this, the clinical characteristics of patients with MPS who have been diagnosed with or are suspected of having FM have not been systematically investigated.

Therefore, in the present study, we investigated the proportion of MPS among patients who had been definitively diagnosed with FM, as well as among those suspected of having FM based on established criteria or on the opinion of a rheumatologist or an FM expert. We also compared patients ultimately diagnosed with MPS and those diagnosed with FM, and analyzed the characteristics of the MPS group to clarify the factors contributing to the earlier suspicion of FM.

Materials and Methods

Study Design

We conducted a cross-sectional study to ascertain the proportion of MPS cases among patients with diagnosed or suspected FM.

Setting

This study retrospectively screened patients who were referred to the internal medicine outpatient clinic in the Department of General Medicine at the Jikei University Kashiwa Hospital (Chiba, Japan) between January 2018 and December 2022.

Participants

Inclusion criteria were patients who had been definitively diagnosed with FM, as well as those suspected of having FM based on established criteria or on the opinion of a rheumatologist or an FM expert, defined as a physician familiar with the diagnosis of FM (eg, a member of the Japanese Society of Fibromyalgia and Chronic Pain). “Suspected FM” was defined as cases in which FM was described as a suspected or possible diagnosis, as indicated by the referring physician in the referral documentation. Patients who underwent examination for muscle pain and received local treatments were included. Patients who declined participation were excluded. Because this was a retrospective study based on referral documents and electronic medical records, the exclusion of alternative diagnoses, including autoimmune diseases, could not be fully verified.

Data Collection

Patient data were extracted retrospectively from electronic medical records. Clinical characteristics in this study were defined as routinely documented demographic and clinical variables available in referral documents and electronic medical records. Variables included sex, age, pain duration, specialty of the referring physician, presence of local muscle

tenderness, response to local treatments, Widespread Pain Index (WPI) and the pain region, chronic widespread pain (CWP), the symptoms included in the Symptom Severity Scale (SSS), and the final diagnosis. Variables were selected based on the FM criteria and major MPS diagnostic guidelines.[5,23,24] The specialty of the referring physician was categorized into four groups: rheumatologist, member of FM society, physician familiar with FM criteria, and other/unknown specialty. Local treatments included manual therapy such as stretching and massage targeting specific muscles. Treatment response was assessed based on documentation in the medical records, including clinician notes indicating symptom improvement following these interventions. The WPI comprised 19 areas, and the pain region comprised five items (left upper, right upper, left lower, right lower, and axial), based on the FM criteria.[5] CWP, which is a fundamental feature of FM, was defined as pain lasting three months or longer that is present in all five pain regions described above.[2,5,25,26] The symptoms comprised six items (fatigue, waking unrefreshed, cognitive symptoms, headaches, pain or cramps in lower abdomen, and depression), based on the FM criteria.[5] The SSS could not be calculated because there was insufficient information regarding the severity and duration of symptoms in the electronic medical records. Absence of documentation regarding pain or symptoms was interpreted as absence of those features.

The diagnosis at our institution was made by a physician familiar with FM diagnosis (eg, a member of the Japanese Society of Fibromyalgia and Chronic Pain), based on referral information and clinical assessment. The final diagnosis was subsequently confirmed by one of the authors, who independently reviewed the medical records and reassessed the diagnosis, including the possibility of reclassification as MPS. MPS is generally defined by the presence of regional pain associated with a palpable taut band containing a myofascial trigger point, where compression reproduces the patient's pain, often accompanied by a local twitch response and alleviation of symptoms following targeted treatment.[23,24] In the present study, the diagnosis of MPS was based on the available clinical information in the medical records, including documentation of regional pain, the presence of myofascial trigger points within taut bands of muscle fibers, and reproduction of the patient's pain upon compression. Because of the retrospective design, some detailed clinical findings (eg, local twitch response) were not consistently documented. Responsiveness to local treatments was considered as part of the overall clinical context, reflecting routine clinical practice; however, it was not used as a determining or independent diagnostic criterion, but rather as a supportive clinical feature. It was instead included as a clinical variable in the comparative analysis to explore its potential relevance in distinguishing MPS from FM.

All patient data were anonymized prior to analysis and handled in accordance with applicable data protection regulations.

Study Population

The sample size was determined by the number of cases in the medical area around the Jikei University Kashiwa Hospital during the study period.

Statistical Analysis

After calculating the proportion of MPS cases among patients with diagnosed or suspected FM, patients with diagnoses other than MPS or FM were excluded from further analysis. Continuous variables (ie, age, pain duration, and WPI and the pain region) were reported as the mean ± standard deviation or the median [interquartile range], and the two groups were compared using Student's *t*-test or the Wilcoxon rank-sum test. Categorical variables (ie, sex, specialty of the referring physician, presence of local muscle tenderness, response to local treatments, CWP, and symptoms) were summarized as the frequency (percentage), and the groups were compared using Pearson's chi-square test or Fisher's exact test. All statistical analyses were performed using JMP ver. 18.2.2 (SAS Institute Inc., Cary, NC, USA), and a two-sided p-value < 0.05 was used for exploratory group comparisons. Given the pilot nature of this study and the limited sample size, these analyses were not intended for formal hypothesis testing or definitive inference. No adjustment for multiple comparisons was performed given the exploratory nature of the analyses.

Results

A total of 29 patients were identified as potentially eligible for analysis (Figure 1). The final diagnoses were MPS in 86.2%, FM in 10.3%, and other in 3.4% (entrapment neuropathy, n = 1). After exclusion of the latter case, 28 patients were included in the final analysis (Figure 1).

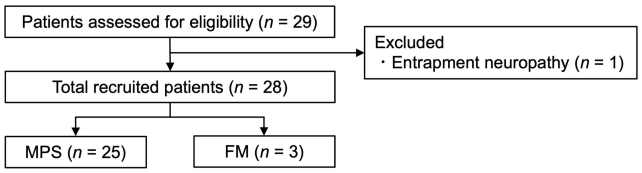

Figure 1 Flowchart depicting study participant enrollment.
Abbreviations: FM, fibromyalgia; MPS, myofascial pain syndrome.

The demographic and clinical characteristics are shown in Tables 1–3. Regarding the referring physicians, 15 (53.6%) were rheumatologists, 8 (28.6%) were members of an FM society, 3 (10.7%) were physicians familiar with FM criteria, and 2 (7.1%) were of other or unknown specialties (Table 1). Compared with the FM group, the MPS group was significantly older (50.7 ± 14.1 years vs 33.3 ± 6.1 years; $p = 0.048$, Table 1), responded better to local treatments (84% vs 0%; $p = 0.011$, Table 1), and reported less fatigue (8% vs 66.7%; $p = 0.045$, Table 2). Among patients with MPS, the 95% confidence interval (CI) for the proportion of upper back pain was 64% (44.5–79.8, Table 3) and that of CWP was 56% (37.1–73.3, Table 3).

Table 1 Demographic and Clinical Characteristics of Patients with FM or MPS

	Total (n = 28)	MPS (n = 25)	FM (n = 3)	*p*-value
Sex				0.536
Male (n, %)	8 (28.6)	8 (32)	0 (0)	
Female (n, %)	20 (71.4)	17 (68)	3 (100)	
Age (years)	48.8 ± 14.5	50.7 ± 14.1	33.3 ± 6.1	0.048*
Pain duration (months)	36 [9, 108]	27.5 [9, 104.8]	108 [18, 108]	0.300
Specialty of the referring physician				
Rheumatologist (n, %)	15 (53.6)	15 (60)	0 (0)	0.087†
Member of FM society (n, %)	8 (28.6)	6 (24)	2 (66.7)	0.188
Physician familiar with FM criteria (n, %)	3 (10.7)	3 (12)	0 (0)	1.000
Other/unknown specialty (n, %)	2 (7.1)	1 (4)	1 (33.3)	0.206
Local muscle tenderness (n, %)	27 (96.4)	25 (100)	2 (66.7)	0.107
Responsiveness to local treatments (n, %)	21 (75)	21 (84)	0 (0)	0.011*

Notes: Patients with diagnoses other than MPS or FM (n = 1) were excluded from this analysis. Data are presented as the number (percentage) using Pearson's chi-square test or Fisher's exact test (two-sided), and mean ± standard deviation or median [interquartile range] using Student's *t*-test or the Wilcoxon rank-sum test as appropriate. *$p < 0.05$; †$p < 0.1$.
Abbreviations: FM, fibromyalgia; MPS, myofascial pain syndrome.

Table 2 Widespread Pain Index and Symptoms Included in SSS of Patients with FM or MPS

	Total (n = 28)	MPS (n = 25)	FM (n = 3)	*p*-value
WPI (0–19)	8.1 ± 3.2	8.5 ± 3.0	5 ± 3.6	0.075†
Jaw, left (n, %)	0 (0)	0 (0)	0 (0)	-
Shoulder girdle, left (n, %)	14 (50)	14 (56)	0 (0)	0.222
Upper arm, left (n, %)	14 (50)	14 (56)	0 (0)	0.222
Lower arm, left (n, %)	21 (75)	19 (76)	2 (66.7)	1.000
Jaw, right (n, %)	0 (0)	0 (0)	0 (0)	-
Shoulder girdle, right (n, %)	13 (46.4)	13 (52)	0 (0)	0.226
Upper arm, right (n, %)	14 (50)	14 (56)	0 (0)	0.222
Lower arm, right (n, %)	21 (75)	19 (76)	2 (66.7)	1.000
Neck (n, %)	11 (39.3)	10 (40)	1 (33.3)	1.000
Upper back (n, %)	17 (60.7)	16 (64)	1 (33.3)	0.543

(*Continued*)

Table 2 (Continued).

	Total (n = 28)	MPS (n = 25)	FM (n = 3)	*p*-value
Lower back (n, %)	14 (50)	14 (56)	0 (0)	0.222
Chest (n, %)	7 (25)	6 (24)	1 (33.3)	1.000
Abdomen (n, %)	5 (17.9)	5 (20)	0 (0)	1.000
Hip, left (n, %)	7 (25)	6 (24)	1 (33.3)	1.000
Upper leg, left (n, %)	17 (60.7)	15 (60)	2 (66.7)	1.000
Lower leg, left (n, %)	14 (50)	13 (52)	1 (33.3)	1.000
Hip, right (n, %)	7 (25)	6 (24)	1 (33.3)	1.000
Upper leg, right (n, %)	18 (64.3)	16 (64)	2 (66.7)	1.000
Lower leg, right (n, %)	13 (46.4)	12 (48)	1 (33.3)	1.000
Pain region (0–5)	5 [3.25, 5]	5 [3.5, 5]	4 [2, 5]	0.384
CWP (n, %)	15 (53.6)	14 (56)	1 (33.3)	0.583
Symptoms included in SSS				
Fatigue (n, %)	4 (14.3)	2 (8)	2 (66.7)	0.045*
Waking unrefreshed (n, %)	0 (0)	0 (0)	0 (0)	-
Cognitive symptoms (n, %)	1 (3.6)	0 (0)	1 (33.3)	0.107
Headaches (n, %)	6 (21.4)	5 (20)	1 (33.3)	0.530
Pain or cramps in lower abdomen (n, %)	0 (0)	0 (0)	0 (0)	-
Depression (n, %)	7 (25)	6 (24)	1 (33.3)	1.000

Notes: Patients with diagnoses other than MPS or FM (n = 1) were excluded from this analysis. Data are presented as the number (percentage) using Pearson's chi-square test or Fisher's exact test (two-sided), and mean ± standard deviation or median [interquartile range] using Student's *t*-test or the Wilcoxon rank-sum test as appropriate. *$p < 0.05$; †$p < 0.1$.
Abbreviations: CWP, chronic widespread pain; FM, fibromyalgia; MPS, myofascial pain syndrome; SSS, symptom severity scale; WPI, widespread pain index.

Table 3 95% Confidence Intervals for the Proportion of Pain Areas and CWP in MPS Patients

	Proportion	95% CI
Jaw, left (%)	0	–
Shoulder girdle, left (%)	56	37.1–73.3
Upper arm, left (%)	56	37.1–73.3
Lower arm, left (%)	76	56.6–88.5
Jaw, right (%)	0	–
Shoulder girdle, right (%)	52	33.5–70.0
Upper arm, right (%)	56	37.1–73.3
Lower arm, right (%)	76	56.6–88.5
Neck (%)	40	23.4–59.3
Upper back (%)	64	44.5–79.8
Lower back (%)	56	37.1–73.3
Chest (%)	24	11.5–43.4
Abdomen (%)	20	8.9–39.1
Hip, left (%)	24	11.5–43.4
Upper leg, left (%)	60	40.7–76.6
Lower leg, left (%)	52	33.5–70.0
Hip, right (%)	24	11.5–43.4
Upper leg, right (%)	64	44.5–79.8
Lower leg, right (%)	48	30.0–66.5
CWP (%)	56	37.1–73.3

Notes: CI, confidence interval; CWP, chronic widespread pain.

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Discussion

In the present study, we found that a large proportion of patients with definitively diagnosed FM, as well as those with suspected FM based on the established criteria or on the opinion of a rheumatologist or an FM expert, were ultimately diagnosed with MPS. Compared with patients with FM, those diagnosed with MPS were older, responded better to local treatments, and reported less fatigue. In addition, patients with MPS exhibited clinical features—particularly upper back pain and CWP—that overlap with the typical presentation of FM.[27,28]

The observed proportion of FM in the present study (10.3%) was lower than that reported in a previous study.[7] One possible explanation is the increasing reliance on symptom-based diagnostic criteria and patient-reported outcomes in routine clinical practice.[2–5,22] Although these criteria improve feasibility and reproducibility, they are not intended to exclude MPS, which is considered a separate musculoskeletal pain condition that may coexist with FM and requires careful physical examination to ensure accurate differentiation. In other words, patients with prominent myofascial findings might be classified as having FM before alternative diagnoses are adequately considered. We therefore suggest that greater attention to the potential presence of MPS may be warranted in clinical evaluation of patients with suspected FM. Importantly, our findings should not be interpreted as indicating that most FM diagnoses are incorrect. The high proportion of patients reclassified as having MPS in the present study likely reflects the characteristics of a selected referral population and the diagnostic challenges arising from overlapping clinical features. This reclassification does not necessarily represent misdiagnosis at the time of initial evaluation, but may reflect differences in diagnostic focus, referral intent, and applied clinical criteria. Notably, even among patients referred by rheumatologists, all cases were reclassified, and this finding should be interpreted cautiously in this context.

Several clinical characteristics distinguished MPS from FM in the present study. Patients with MPS were older, reported less fatigue, and responded better to local treatments. These findings are consistent with previous reports indicating that fatigue is a core feature of FM and less prominent in peripheral pain conditions.[29,30] In addition, the high rate of responsiveness to local treatments in the MPS group supports the importance of peripheral pain mechanisms and highlights the diagnostic value of targeted physical examination and therapeutic trials of local treatments. However, these findings should be interpreted with caution, given the small number of patients in the FM group, and should be considered exploratory and hypothesis-generating.

The patients with MPS in the present study demonstrated pain distributions that might explain why they were initially suspected of having FM. Upper back pain was highly prevalent, exceeding rates reported for chronic MPS in the general population and approaching those observed in FM.[25,27,28] In addition, more than half of the MPS patients satisfied the criteria for CWP, a hallmark feature of FM. Expansion of pain distribution and involvement of upper axial regions might therefore contribute substantially to the diagnostic confusion between MPS and FM, particularly in patients with long-standing symptoms.

While the present study focused on clinical differentiation between MPS and FM, their relationship is complex and not fully understood. The two conditions may coexist or overlap, and multisite myofascial pain may contribute to widespread pain. In addition, both peripheral and central mechanisms have been implicated in MPS, and the concept of myofascial trigger points remains debated.[31,32] From a clinical perspective, careful assessment of regional pain characteristics may help identify myofascial pain components and guide management. These components may also contribute to the clinical presentation of patients diagnosed with FM.

The present study has several limitations. The retrospective design and reliance on medical records without direct physical examination at the time of reassessment may have affected diagnostic accuracy and introduced potential misclassification. The sample size was small and not formally calculated, reflecting the pilot nature of this study in a single-center, referral-based setting. The cross-sectional design limits assessment of diagnostic stability over time. Some clinical variables, including SSS, were incompletely documented. MPS diagnosis was based on retrospective review of electronic medical records without standardized confirmation, and exclusion of comorbid conditions could not be fully verified. Therefore, the findings should be considered exploratory. Future prospective studies with standardized assessments and diagnostic confirmation are needed.

Despite these limitations, the present study has several strengths. It addresses the clinical differentiation between MPS and FM in a real-world referral setting. Cases were re-evaluated using predefined clinical features from medical records, improving diagnostic consistency. The inclusion of both diagnosed and suspected FM cases enhances external validity.

To our knowledge, the present study provides one of the first real-world estimates of the proportion of MPS among patients with diagnosed or suspected FM.

Conclusion

Most patients diagnosed with or suspected of FM in this tertiary-care setting were ultimately diagnosed with MPS, highlighting the potential for diagnostic overlap between these conditions. Careful assessment of regional pain characteristics and physical examination findings may improve diagnostic accuracy and support more appropriate targeted management.

Abbreviations

CI, confidence interval; CWP, chronic widespread pain; FM, fibromyalgia; MPS, myofascial pain syndrome; SSS, Symptom Severity Scale; WPI, Widespread Pain Index.

Data Sharing Statement

The data supporting the findings of this study are available from the corresponding author upon reasonable request.

Ethics Approval and Informed Consent

The study was approved by the Ethics Committee of the Jikei University School of Medicine (approval number 35-053) and conducted in accordance with the principles laid down in the Declaration of Helsinki and its later amendments. A waiver for informed consent was approved with opt-out consent in view of the retrospective observational nature of this research. All patient data were anonymized prior to analysis and handled in accordance with applicable data protection regulations.

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Disclosure

The authors report no conflicts of interest in this work.

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