Oral Symptoms Associated with Fibromyalgia Syndrome

NELSON L. RHODUS, JAMES FRICTON, PATRICIA CARLSON, and RONALD MESSNER

ABSTRACT. ***Objective.*** Studies have described oral problems associated with fibromyalgia syndrome (FM), including sicca, oral ulcerations, and orofacial pain. We evaluated the prevalence and profile of various oral symptoms in a population of patients diagnosed with FM.

Methods. Subjects diagnosed with FM by American College of Rheumatology criteria (n = 67; all women, mean age ± SEM 47.6 ± 2.3 yrs) were enrolled in the study after meeting strict exclusion criteria (i.e., oral mucosal conditions, Sjögren's syndrome, anemia, inflammatory bowel syndrome or other gastrointestinal disturbances, and other disorders that may manifest oral symptoms). Subjective oral evaluations were carried out for each subject, including oral pain (Melzack scale) for glossodynia, throbbing, aching, etc.; temporomandibular joint dysfunction (TMD); xerostomia (including intake of fluids, functional problems, etc.); dysphagia; dysgeusia; and information about frequent oral ulcerations or lesions. Psychological tests included Beck Depression Scale (BDS) and Spielberger Anxiety Scale (SAS) were administered.

Results. The results indicated a significant prevalence in some subjects' oral symptoms, compared to age and sex matched control data (mean ± SEM) for xerostomia 70.9% vs 5.7% ($p < 0.001$); glossodynia 32.8% vs 1.1% ($p < 0.001$); TMD 67.6% vs 20% ($p < 0.01$); dysphagia 37.3% vs 0.4% ($p < 0.001$); dysgeusia 34.2% vs 1.0% ($p < 0.001$). Other findings were not significantly different from controls: oral ulcerations/lesions 5.1% vs 4.4% (NS); BDS 34% vs 30% (NS); SAS 21% vs 19% (NS). The average visual analog scale (100 mm) for burning pain was 53.0 ± 5.6 ($p < 0.001$). Anxiety and depression scores were no different in the FM subjects compared to controls with chronic pain conditions.

Conclusion. These data indicate that patients with FM have significantly increased prevalence of xerostomia, glossodynia, dysphagia, dysgeusia, and TMD compared to controls, with no significant difference in clinical oral lesions or psychological status. (J Rheumatol 2003;30:1841–5)

Key Indexing Terms:
FIBROMYALGIA GLOSSODYNIA XEROSTOMIA DYSGEUSIA
TEMPROMANDIBULAR JOINT

Fibromyalgia syndrome (FM) is a chronic, painful disorder that is primarily diagnosed based upon a history of widespread chronic pain of at least 11 of 18 defined tender points with a duration of at least 3 months[1,2]. FM has been recently recognized as a rheumatic disease that primarily manifests as a complex of many symptoms with very few clinical signs, and although the American College of Rheumatology (ACR) has defined a set of diagnostic criteria[3], diagnosis of FM often remains elusive.

According to recent epidemiological data, the prevalence of FM (which occurs primarily in women, 97% in one report) in the United States is as high as 4–6%[4]. Identification of etiology or pathophysiologic mechanisms of FM has been difficult due to the lack of any definitive pathologic lesions.

Studies have indicated some oral problems associated with FM, although specific data are lacking. Symptoms described in these studies include sicca[5-9], oral ulcerations[10], and orofacial pain[11-13].

The reported prevalence of sicca (xerostomia symptoms) in subjects with FM varies from 7% to 55%[6-9]. The prevalence of oral ulcerations from one report was 9.2%[10], but the subjects with FM were a subset of patients with Behçet's syndrome, which by definition presents oral ulcerations independent of FM.

Orofacial pain in patients with FM has been reported[11], but with no data on prevalence or type. FM was also reported by Heir, *et al* in 18.4% of patients with temporomandibular joint dysfunction (TMD)[11], and by Fricton, *et al* in 20%[12]. Plesh, *et al* reported the prevalence of TMD in FM was 75%, with the severity of symptoms worse in the subjects with FM[13].

Although the association of FM and Sjögren's syndrome (SS) has been documented[8] by positive serological testing,

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the association was only 6.9% probable overlap of conditions. In that study, 19% of patients with primary SS reported xerostomia symptoms. There have been no reports of dysphagia or dysgeusia associated with FM, irrespective of the coexistence of primary SS or sicca symptoms.

We evaluated the prevalence and profile of various oral symptoms, including glossodynia (burning mouth), xerostomia, TMD, dysphagia, and dysgeusia, by established criteria compared to actual oral lesions in a population of patients definitively diagnosed with FM.

MATERIALS AND METHODS

Patients presenting to the Rheumatology Clinic of the University of Minnesota with symptoms of FM were examined and diagnosed by a rheumatologist (RM) according to the criteria of the ACR[3]. Subjects meeting the criteria provided informed consent approved by the University of Minnesota Institutional Review Board and were enrolled in the study. Symptoms were identified upon the initial examination of the subject, and in those taking tricyclic antidepressant or other psychotropic medications and hormone replacement therapy. Each subject underwent an oral examination and completed a questionnaire concerning oral symptoms including oral burning, dry mouth, taste abnormalities, TMD, and swallowing difficulties. The criteria for each endpoint that was evaluated are illustrated in Figures 1–3.

Dry mouth was determined by subjects' responses to the xerostomia questionnaire (Figure 1), as validated in other studies[14,15]. Oral burning was identified by the subjective reporting of chronic pain (> 3 months continuous burning pain as determined by the Melzack-McGill Pain Scale; Figure 2). Taste and swallowing dysfunction were also evaluated by a subjective questionnaire. TMD was determined using the Rheumatic Problems Questionnaire (Figure 3) from the University of Minnesota TMJ Clinic.

XEROSTOMIA QUESTIONNAIRE

(To be completed by the SUBJECT)

Below are several questions which will describe the dryness in your mouth and how that dryness interferes with aspects of your daily life. Please make one **vertical mark** across the line to show your condition.

1. During the last three (3) days, your mouth or tongue was:

Very dry — Not dry

2. During the daytime hours of the last three (3) days, the feeling of your mouth and tongue was:

Extremely Uncomfortable — Comfortable

3. During the last three (3) nights, due to dryness of your mouth and tongue, how difficult was it to sleep? How often did you wake up to drink or go to the bathroom?

Very Difficult — Easy

4. During the last three (3) days, due to the dryness of your mouth and tongue, how difficult was it to speak without having to drink liquids?

Very Difficult — Easy

5. During the last three (3) days, due to the dryness of your mouth and tongue, how difficult was it to chew and swallow food?

Very Difficult — Easy

6. If you normally wear dentures; due to the dryness of your mouth and tongue, how difficult was it to wear dentures in the last three days? (If you do not wear dentures or could not wear dentures for reasons other than those associated with dry mouth, please circle the **X** at the right and make no mark on the line)

Very Difficult — Easy

Figure 1. The Xerostomia Questionnaire.

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SHORT FORM McGILL PAIN QUESTIONNAIRE SF-MPQ

RONALD MELZACK

PATIENT'S NAME_____ DATE _____

	(0) NONE	(1) MILD	(2) MODERATE	(3) SEVERE
THROBBING				
SHOOTING				
STABBING				
SHARP				
CRAMPING				
GNAWING				
HOT-BURNING				
ACHING				
HEAVY				
SPLITTING				
TIRING-EXHAUSTING				
SICKENING				
FEARFUL				
PUNISHING-CRUEL				

PPI

0) NO PAIN _____

1) MILD _____

2) DISCOMFORTING _____

3) DISTRESSING _____ NO PAIN_____WORST POSSIBLE PAIN

4) HORRIBLE _____

5) EXCRUCIATING _____

Figure 2. The Melzack-McGill Pain Scale.

Control subjects were volunteers matched for age and sex, recruited from the general dental admissions clinic. After giving informed consent, each control subject underwent an oral examination and completed the same questionnaires as the FM subjects.

RESULTS

The results indicated a significant prevalence in all oral symptoms in the FM subjects compared to controls: 70.9% of FM subjects experienced xerostomia vs 5.7% of controls ($p < 0.001$). Glossodynia was present in 32.8% of the FM subjects vs 1.1% of controls ($p < 0.001$). The average (± SEM) visual analog scale score (100 mm) for oral burning pain was 53.0 ± 5.6 ($p < 0.001$). TMD was present in 67.6% of FM subjects vs 20% of controls ($p < 0.01$). Dysphagia was present in 37.3% of FM subjects vs 0.4% of controls ($p < 0.001$); 34.2% of FM subjects had dysgeusia vs 1.0% of controls ($p < 0.001$). Oral lesions were present in 5.1% of FM subjects vs 4.4% of controls (nonsignificant). Anxiety and depression scores were not different in the FM subjects compared to the 20% of controls with chronic pain (TMD) conditions.

Regarding medication use and oral symptoms, 27.5% of FM subjects with xerostomia were taking antidepressant or other xerogenic drugs; 32.5% of FM subjects with xerostomia were taking hormone replacement therapy; 37.5% of FM subjects with burning mouth syndrome were taking antidepressant or other xerogenic drugs; 12.5% of FM subjects with burning mouth syndrome were taking hormone replacement therapy.

DISCUSSION

The data from this study of 67 women diagnosed with FM indicated they had a significantly increased prevalence of xerostomia, glossodynia, dysphagia, dysgeusia, and TMD compared to controls, even controlling for xerogenic medications and hormone replacement therapy. Although the oral symptoms were prominently prevalent, oral pathological lesions or mucosal abnormalities were not significantly different in the FM subjects compared to controls.

The symptom of xerostomia accompanying salivary gland hypofunction is a common complaint of individuals who have certain autoimmune, inflammatory diseases, e.g., SS, systemic lupus erythematosus (SLE)[8,14,15]. In the study correlating primary SS and FM[8], 11% of FM patients had abnormal foci of autoimmune lymphocytic infiltration of the

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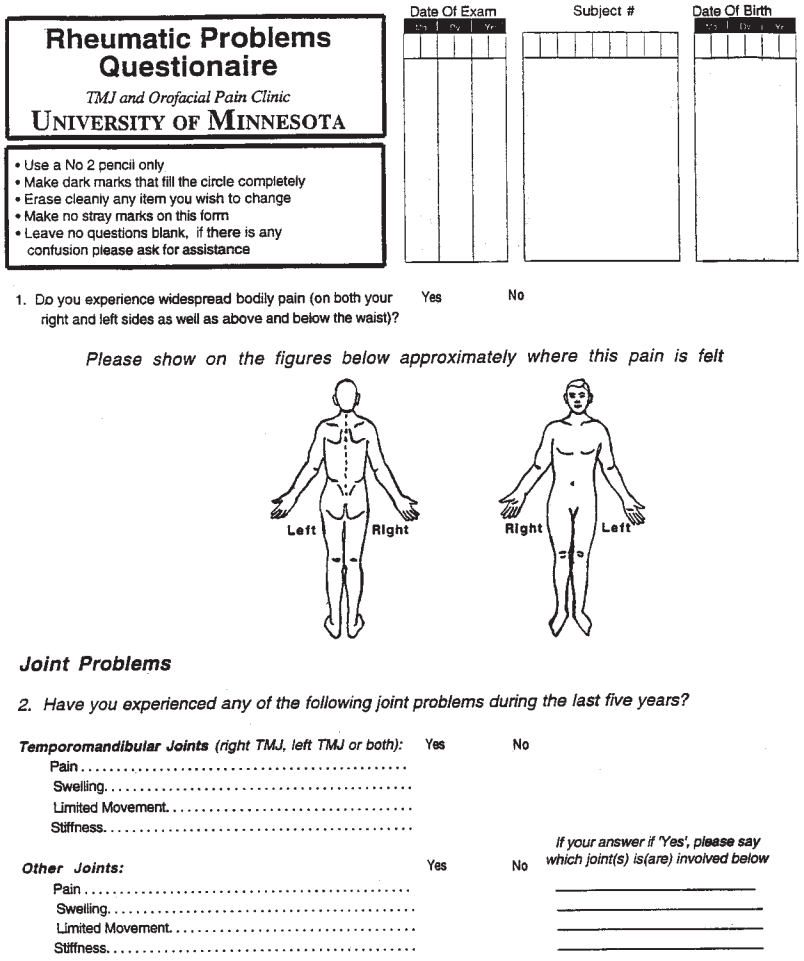

Rheumatic Problems Questionaire

TMJ and Orofacial Pain Clinic

UNIVERSITY OF MINNESOTA

- Use a No 2 pencil only
- Make dark marks that fill the circle completely
- Erase cleanly any item you wish to change
- Make no stray marks on this form
- Leave no questions blank, if there is any confusion please ask for assistance

Date Of Exam | Subject # | Date Of Birth

1. Do you experience widespread bodily pain (on both your right and left sides as well as above and below the waist)? Yes No

Please show on the figures below approximately where this pain is felt

Left Right Right Left

Joint Problems

2. Have you experienced any of the following joint problems during the last five years?

Temporomandibular Joints *(right TMJ, left TMJ or both):*	Yes	No
Pain		
Swelling		
Limited Movement		
Stiffness		

Other Joints:	Yes	No	*If your answer if 'Yes', please say which joint(s) is(are) involved below*
Pain			
Swelling			
Limited Movement			
Stiffness			

Figure 3. The Rheumatic Problems Questionnaire.

salivary glands. In that prospective study of 72 patients with primary SS there was an association of 6.9% probable overlap with FM; 19% of patients with primary SS reported xerostomia symptoms[8]. It is possible in light of our findings that there is indeed some overlap of these conditions, at least from a clinical symptomatic perspective.

Xerostomia may also be induced by over 450 medications, most conspicuously anticholinergic drugs such as tricyclic antidepressants, sedatives, tranquilizers, and muscle relaxants[15]. While it would seem that many patients with FM would likely be taking these drugs, the percentage of patients was only 27.5%, while the percentage of FM subjects with xerostomia was 70.5%. Thus, there was a high level of xerostomia in this patient population even when controlling for these xerostomia-producing medications.

FM has been highly correlated with depression and anxiety. In some studies as many as 60% of patients with FM have depression and anxiety[16]. In this study, psychological profiles for depression and anxiety, while moderately indicative of both these disorders in 60% of the subjects, were not statistically different compared to controls with other chronic pain syndromes (i.e., TMD).

Glossodynia (burning mouth syndrome) has been correlated with many inflammatory conditions (SS, SLE, Beçhet's syndrome, ulcerative colitis, etc.)[5,14], but has not been reported with FM. A high percentage (32.8%) of FM subjects in this study complained of burning mouth syndrome.

Neurological mechanisms, both peripheral neurogenic damage and/or central hyperexcitability, explain much of the profile of burning mouth syndrome. Burning mouth syndrome may represent hyperalgesia (exaggerated responsiveness) and allodynia (lowered pain threshold). Until recently, there have been few well controlled studies designed to effectively diagnose the neuropathic profile of burning mouth syndrome[17]. It is possible that some of these neurologic mechanisms are also responsible for chronic pain in FM.

The results of our study indicate that certain oral symp-

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toms may be quite prevalent in fibromyalgia syndrome. The health care practitioner should be aware of these potential manifestations of FM. The underlying mechanisms responsible for the chronic pain in FM may have an association with mechanisms responsible for oral pain and/or salivary dysfunction. Further research into these oral conditions, objective criteria for their measurement, and elucidation of pathophysiologic mechanisms is warranted.

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