

# FIBROSITIS OR THE FIBROMYALGIA SYNDROME

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Although fibromyalgia is defined as a generalized pain, stiffness, and tenderness syndrome with associated fatigue and sleep disturbance, there are definitions and criteria that characterize the condition. (Table 1) First, the core features of generalized pain and widespread local tenderness are present in all patients. Second, fatigue, morning stiffness, and a non-refreshed or disturbed sleep may be present in patients, but is not necessary for the diagnosis. Any or all of these symptoms are found in 75% of the patients. Third, 25% or more of the patients may have irritable bowel syndrome, Raynaud's phenomenon, headache, a subjective sensation of swelling, paraesthesias, psychological dysfunction and/or functional disability. Fourth, fibromyalgia may be found in association with other rheumatic conditions such as arthritis of any variety, low back or neck problems, tendonitis, or others. This can make both diagnosis and treatment of either condition difficult.

The dominant feature, generalized pain, is essential for the diagnosis. Often, the patient's complaints are concentrated in one or a few areas, but a careful history will usually elicit a more widespread distribution of pain. The most common areas affected are the axial skeleton (back and neck) as well as the pelvic and shoulder girdles. Patients' most common pain descriptors are "aching, exhausting, nagging, or hurting". The other dominant feature - widespread tenderness - is one of a widespread yet localized nature; that is, patients can localize their areas of tenderness despite the fact that there may be many of them. In fact, dolorimetry studies have demonstrated the tender areas while being able to differentiate them from control areas and have also

shown that non-tender areas in fibromyalgia patients are identical to non-tender areas in normal or control patients. Tenderness "everywhere" is not a feature of fibromyalgia.

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**Table 1**

## **FIBROMYALGIA SYNDROME DIAGNOSTIC CRITERIA**

- A. Major (all are required)
  - 1. Widespread pain ( $\geq$  3 months)
  - 2. Multiple tender points ( $\geq$  6 specific sites)
  - 3. No other underlying cause for symptoms
- B. Minor
  - 1. Stage IV non-REM sleep abnormality
  - 2. Non-restorative sleep
  - 3. Morning stiffness and fatigue
  - 4. Daytime fatigue
  - 5. Subjective swelling or dysaesthesias
  - 6. Aggravated by cold, stress, physical activity
  - 7. Improved by heat, rest, physical fitness
  - 8. Chronic headache
  - 9. Functional bowel symptoms, especially colon

Adapted from Hench PK: Evaluation and Differential Diagnosis of Fibromyalgia. In Bennett RM, Goldenberg DL (eds) *Rheum Dis Clin North Am* 15(1):19-29, 1989.

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As far as the characteristic but not universal features are concerned, sleep abnormality is the most common and is found in about 90% of the patients. This abnormality is usually described by patients as "waking tired or unrefreshed." Various studies have found abnormal sleep electroen-

cephalograms (EEG's) which have been described as "alpha-delta sleep" (anomalous mixture of faster alpha frequency on top of slower delta frequency) or more recently as "alpha EEG non-rapid eye movement (NREM) sleep anomaly." This latter may be found in different stages of sleep but not usually in REM sleep. Unfortunately, this EEG pattern is not specific for fibromyalgia and may be found in many chronic diseases and in many normals.

Fatigue, another very common symptom, may be a major complaint or a minor irritant, and patients will often relate that they are too tired to do what they want to do. The final characteristic symptom - morning stiffness - may be a separate symptom but is also a common complaint in patients with non-refreshed sleep of any origin and may therefore be part of that problem.

Of the common but less frequently encountered complaints, paraesthesias (tingling or numbness) and a subjective sensation of swelling are the most common, followed by headache and irritable bowel complaints. Either a true Raynaud's syndrome or a Raynaud's-like syndrome is encountered in 10 - 40% of patients, depending upon the strictness of the definition. Varying types and degrees of psychologic abnormality are not uncommonly found depending upon definition and psychologic test used. Finally, functional and work disability may be as frequent in fibrositis as it is in rheumatoid arthritis. Studies suggest that as many as 30% of patients may change jobs because of their condition and more than 15% discontinue working altogether.

The list of coexistent rheumatic conditions that may accompany fibromyalgia is almost as long as the list of known rheumatic diseases. When there is no known concomitant rheumatic disease or if the concomitant disease is considered mild enough to have no bearing on the fibromyalgia symptoms, the fibromyalgia is felt to be "primary", while it is termed "secondary" if it is felt to be aggravated or caused by the coexistent condition.

Laboratory studies are generally of no value in fibromyalgia, although there is a suggestion of a slightly increased incidence of positive antinuclear antibody (ANA), low C3, and positive history of symptoms of the sicca syndrome in those with Raynaud's phenomenon as compared with those without Raynaud's. There is also a suggestion of

an increased incidence of HLA DR4, a gene also found with increased frequency in rheumatoid arthritis, in fibrositis patients when compared with normal controls.

Approximately three-fourths or more of the patients are women and the age of onset is variable and may reflect the age of onset of the concomitant disease when one is present. One private practice out-patient report showed 90% of the patients to be women, 90% to have a high school or greater education and 80% to be married. It is felt that a flaw in that report may be that the statistics represent a practice selection bias more than true patient characteristics. In that same report, the mean age of patients was slightly over 50 years of age.

Clinical presentation is extremely varied, although most patients include back pain - often with radiations of pain to the buttocks - as part of their initial complaint. Most patients will undergo many non-invasive, invasive, and laboratory studies before diagnosis is actually made. Those studies are almost invariably normal, although occasionally a false lead such as a positive ANA may lead to an erroneous diagnosis. More than 50% of the patients report no causative event for their symptoms, but a significant number report some type of trauma or infection as the causative event. The fibromyalgia syndrome tends to be chronic although it is not unusual to have remissions of two months or longer on occasion.

## DIAGNOSIS

The differential diagnosis of fibromyalgia is truly one of exclusion. A good history (chronic pain, fatigue, non-restorative sleep), physical examination (normal except for tender points), appropriate laboratory studies (normal) and x-ray studies (normal) are necessary to rule out other causes of the patient's symptoms.

There are multiple somatic complaints, often including anxiety and mental stress, headaches, irritable bowel (especially the colon), sensations of tissue swelling, and paraesthesias. Warmth and dryness frequently relieve or positively modify symptoms while a cold and or damp setting seems to exacerbate them. Moderate exercise and conditioning as well as restful sleep are usually helpful, while excessive or no exercise seems to make the problem worse.

The laboratory is not often helpful and at times may be confusing (e.g. a positive ANA), although a complete blood count, sedimentation rate and thyroid function tests should probably always be performed. Other studies in particular instances may include evaluation of renal function, muscle enzymes, serum protein electrophoresis and specific antibody tests (rheumatoid factor or antinuclear antibody). X-rays, nerve conduction velocity (NCV) studies and electromyographic (EMG) studies are usually not necessary. The EEG often shows the intrusion of alpha waves into stage IV delta wave non-REM sleep.

An extensive review of the most common diseases that may be confused with the fibromyalgia syndrome is beyond the scope of this paper. Table 2 contains a quick listing of the conditions most frequently considered in differential diagnosis.

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**Table 2**

**FIBROMYALGIA SYNDROME  
DIFFERENTIAL DIAGNOSIS**

1. Myofascial Pain Syndrome
2. Temporomandibular Joint (TMJ) Syndrome
3. Multiple Site Soft Tissue Rheumatism (e.g. tendonitis)
4. Polymyalgia Rheumatica (PMR)/ Giant Cell Arteritis (GCA)
5. Polymyositis / Dermatomyositis
6. Endocrinopathies
  - a. Hyper or Hypothyroidism
  - b. Hyper or Hypoparathyroidism
  - c. Adrenal Insufficiency
7. Metabolic Myopathy (e.g. alcohol)
8. Neurosis (e.g. depression/anxiety)
9. Metastatic Carcinoma (Ca)
10. Chronic Fatigue Syndrome
11. Parkinsonism (dyskinetic phase)

Adapted from Hench PK: Evaluation and Differential Diagnosis of Fibromyalgia. In Bennett RM, Goldenberg DL (eds) *Rheum Dis Clin North Am* 15(1):19-29, 1989.

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**TREATMENT**

Treatment of fibrositis is difficult at best and impossible and frustrating at worst. Most therapies

are unsuccessful with the average patient trying 4 - 5 drugs per year and presently taking 3 - 4 drugs. Ninety percent of the patients have tried non-steroidal anti-inflammatory drugs (NSAIDs) and 50% have tried amitriptyline or cyclobenzaprine. Only approximately one-third note "moderate" or "great" improvement.

Non-pharmacologic therapeutic modalities (Table 3) have approximately the same (dismal) success as do medications and greater than 60% of individuals report treatment to be ineffective, yet want to continue it. Relaxation therapy and chiropractic treatment seem to be the best of the non-pharmacologic approaches according to some, while other studies suggest exercise and biofeedback training are best. The only medications shown in studies to be beneficial are amitriptyline (Elavil) and cyclobenzaprine (Flexeril). How they work is a matter for conjecture, but some of their known effects with possible ramifications for fibromyalgia symptoms are shown in Table 4.

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**Table 3**

**NON-PHARMACOLOGIC MODALITIES  
FOR FIBROMYALGIA**

1. Exercise (cardiovascular fitness training)
2. Biofeedback training
3. Transcutaneous nerve stimulation
4. Acupuncture analgesia
5. Local injection to tender points
6. Post-isometric relaxation
7. Ice/heat range of motion exercise
8. Laser therapy
9. Massage therapy
10. Hypnosis
11. Chiropractic therapy
12. Cognitive behavioral therapy

Adapted from McCain GA: Nonmedical Treatments in Primary Fibromyalgia. In Bennett RM, Goldenberg DL (eds) *Rheum Dis Clin North Am* 15(1):73-90, 1989.

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It appears that the therapeutic effects of cyclobenzaprine (marketed as a muscle relaxant) and amitriptyline (an antidepressant) are unrelated to their muscle relaxation or antidepressant effects. Doses are lower than those usually utilized for muscle relaxation or depression and both drugs have a tricyclic structure that has been

shown to have positive effects on sleep. The side effects are similar, with the most common ones being drowsiness the next morning (almost a "hangover" sensation) or dryness of the mouth. Weight gain, dryness of the eyes, and constipation have also been reported with some frequency. The choice as to which drug to try first is personal, and the doses are usually quite low, 10 mg of cyclobenzaprine or 10-50 mg of amitriptyline at or a bit before bedtime.

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**Table 4**

**EFFECTS OF AMITRIPTYLINE AND  
CYCLOBENZAPRINE**

1. Increase brain serotonin and other amines
2. Release of endogenous opioids (endorphins)
3. Direct effect on stage IV sleep
4. Central nervous system reduction of motor activity
5. Anticholinergic activity
6. Relief of depression

Adapted from Goldenberg DL: Treatment of Fibromyalgia Syndrome. In Bennett RM, Goldenberg DL (eds) *Rheum Dis Clin North Am* 15(1):61-71, 1989.

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Doxepin (Sinequan) has also been shown to have some efficacy in fibrositis but is quite frequently associated with a "morning after" hangover for several hours which makes it of questionable value in this condition.

Much has been learned about fibrositis in the last 15 years. Fibrositis has come from a state of not being sure whether it truly existed to a point where there is little doubt about its existence. Definitions and criteria have been the object and result of many studies, but objective data

continues to be elusive. Therefore stringent application of the available criteria is required so as to not dilute the true incidence, magnitude, and severity of the condition. Muscle and other soft tissue biopsy studies have been done with conflicting results, and other research protocols have centered around immunologic and neurohormonal etiologic and/or pathologic abnormalities, also with enigmatic and non-specific outcomes.

The fibromyalgia syndrome is probably the most common condition encountered in a community-based rheumatologic practice and may well be one of the most common conditions encountered in a general medical practice as well. Accordingly, it behooves anyone dealing with a significant population of patients who commonly have complaints of pain to be aware of this frequently encountered but poorly understood condition.

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