CASE:
A 32-year-old teacher consults her family doctor about generalized pain she has been experiencing for the past six months. She initially describes the sensation as ‘all joints hurting’, but more detailed questioning reveals that she experiences not only joint but muscle soreness, as well as stiffness that lasts all day. The discomfort is severe enough that she finds it difficult to raise her hand and write on a chalkboard, and to carry a purse on her shoulder.

She has experienced no weight loss, rash, joint warmth or swelling. While her own past medical history is unremarkable, her older sister has a history of depression.

EPIDEMIOLOGY AND CLINICAL PRESENTATION
The fibromyalgia syndrome (FMS), or simply fibromyalgia, is characterized by fatigue, stiffness and widespread aching in muscles and soft tissues. The disorder affects approximately 2% of the general population and occurs seven times more frequently in women than in men, generally during the child-bearing years. A notable risk factor for the condition is either a personal or family history of depression, as in the above case or previous trauma, often minor.

Most people with FMS complain of aching and stiffness in the neck, shoulder, upper and lower back and...
hip areas, and some experience irritable bowel syndrome, irritable bladder, tension headaches and numbness in the extremities. The pain is chronic, felt in the muscles and joints, and is often associated with a sensation of swelling. Fatigue, a prominent feature of FMS, is often associated with poor sleep, which about 80% of patients recognize as a problem. Clues to a possible sleep disturbance include headaches, rhinitis, nocturia, dry mouth, snoring, restless leg syndrome, shortness of breath and daytime naps. The lack of laboratory abnormalities in FMS is the rule.

**Differential Diagnosis**

Because of the nonspecific nature of the pain in FMS, diagnosis can be especially tricky (see Table 1 in Summary on page 32). People with FMS have tender points on palpation in up to 18 specific areas. Diagnosis is based on the finding of multiple tender points, as well as the patient’s description of chronic, widespread, diffuse pain. Because FMS is often accompanied by stiffness that tends to be worse in the morning, FMS may initially be mistaken for rheumatoid arthritis (RA). The absence of joint swelling or of prolonged morning stiffness that abates with movement should help rule out RA.

**Hypothyroidism** could produce symptoms similar to those found in FMS, but may also engender delayed tendon reflex relaxation, goiter, slow pulse, systolic hypotension, dry skin and a deepened voice. An elevated level of thyroid-stimulating hormone (TSH) confirms the diagnosis.

**Polymyalgia rheumatica** should be considered in patients older than 50. A notable feature of the disorder is the absence of symptoms below the knee, which is often the case with FMS as well. However, the morning stiffness associated with polymyalgia is more prolonged than that caused by FMS, and is concentrated in the shoulders, neck and/or buttock area.

FMS must also be distinguished from myofascial pain syndrome, which typically causes localized unilateral muscular pain rather than generalized aching, stiffness, or fatigue. Finally, emotional stress or depression must be considered as a contributing factor to FMS, and is associated with 30% of patients.

Because FMS often occurs secondarily to other underlying conditions such as RA, clinicians may miss a concomitant diagnosis of FMS and attribute symptoms to the primary condition.
LABORATORY TESTING

If symptoms are equivocal and RA or another disease is considered, CBC, ESR and CK may be of diagnostic value. In the above case, however, there is no call for performing an RA test, as the high probability of obtaining false positives might confuse rather than clarify the diagnosis. The only test recommended in this case is a thyroid stimulating hormone (TSH) test to rule out hypothyroidism.

In patients with a history suggestive of particular sleep disturbances such as sleep apnea, a sleep study may be warranted.

EXPECTED COURSE & MANAGEMENT

Although fibromyalgia is a chronic disorder, about one-quarter of patients are in remission after two years. Patients can continue to have long-term pain and fatigue, but most have little functional limitations.

Medication for symptoms may often be necessary for years, and even patients who respond to therapy may continue to experience a lower-level generalized pain. Most therapy for FMS should initially focus on patient education and reassurance. The clinician should stress that FMS is not rare, deforming, or life-threatening, and not (in the majority of cases) a psychiatric disturbance. On the other hand, if stress is a contributing factor, as is likely in the above case, a temporary break
from the stressful environment (e.g. through relaxation therapy) may improve symptoms.

Nonsteroidal anti-inflammatory drugs are appropriate if effective, though they often are not. The most useful pharmacological intervention appears to be medication that improves sleep. In particular, a low dose of the tricyclic antidepressant amitriptyline, taken an hour or two before bedtime, has been shown to restore sleep and reduce, to a lesser extent, FMS symptoms in general. At a higher dose, the same drug does double-duty for patients with underlying depression.

Patients should also be encouraged to follow a daily exercise routine, beginning with stretching and progressing to more vigorous aerobic movements. Other forms of therapy include biofeedback, meditation, ultrasound, acupuncture, injection with local anesthetics or corticosteroids and massage.

Cognitive restructuring and psychosocial group therapy have been shown to promote adjustment to this often chronic disorder.

Criteria for fibromyalgia
- Three-month history of widespread pain, defined as pain in the four quadrants of the body (left, right, upper, and lower) and including axial skeletal pain
- Pain in at least 11 out of 18 tender point sites on digital palpation: (left and right) occiput, low cervical, trapezius, supraspinatus, second costo-chondral, lateral epicondyle, upper outer quadrant of buttock, greater trochanter, medial fat pad of knee
- Fatigue and/or non-restorative sleep

Treatment
- Regular low-intensity exercise
- Temporary break from routine
- Amitriptyline, cyclobenzaprine or other sleep-promoting antidepressant at low dose
- NSAIDs or acetaminophen (if effective)
Fibromyalgia Tender Points Identified By The American College Of Rheumatology In 1990

(at digital palpation with an approximate force of 4 kg)

1 & 2, Occiput: bilateral, at the suboccipital muscle insertions.
3 & 4, Low cervical: bilateral, at the anterior aspects of the intertransverse spaces at C5-C7.
5 & 6, Trapezius: bilateral, at the midpoint of the upper border.

7 & 8, Supraspinatus: bilateral, at origins, above the scapula spine near the medial border.
9 & 10, Second Rib: bilateral, at the second costochondral junctions, just lateral to the junctions on upper surfaces.
11 & 12, Lateral epicondyle: bilateral, 2 cm distal to the epicondyles.
13 & 14, Gluteal: bilateral, in upper outer quadrants of buttocks in anterior fold of muscle.
15 & 16, Greater trochanter: bilateral, posterior to the trochanteric prominence.
17 & 18, Knee: bilateral, at the medial fat pad proximal to the joint line.

Source: National Fibromyalgia Partnership, Inc.
**FIBROMYALGIA**

### QUESTIONS

1. **What are the principal risk factors for FMS?**
   Female gender, age 20 to 60, personal or family history of depression, underlying rheumatic disorder, sleep apnea.

2. **What is the role of sleep disturbance in FMS?**
   A documented association exists between FMS and primary sleep disturbances, such as sleep apnea or nocturnal myoclonus, which produce fragmented sleep. The FMS associated with these conditions tends to dissipate when the sleep problem is treated. The tricyclic antidepressant amitriptyline has proven effective in this regard.

### DIAGNOSTIC SUMMARY

Differential diagnosis of diffuse musculoskeletal pain

<table>
<thead>
<tr>
<th>Disorder</th>
<th>Clinical Findings</th>
<th>Laboratory Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fibromyalgia</td>
<td>diffuse pain, stiffness, tenderness, fatigue, tender points</td>
<td>none (normal)</td>
</tr>
<tr>
<td>Rheumatoid arthritis</td>
<td>joint pain predominates decreased ROM, joint swelling</td>
<td>elevated ESR/CRP, joint erosions, RF+</td>
</tr>
<tr>
<td>Polymyalgia rheumatica</td>
<td>&gt;40, shoulder/hip pain</td>
<td>elevated ESR</td>
</tr>
<tr>
<td>Spondyloarthropathy</td>
<td>back pain (tendonitis), enthesitis, arthritis</td>
<td>+ve HLA-B27, X-ray changes, sacroiliitis, syndesmophytes</td>
</tr>
<tr>
<td>Lupus erythematous</td>
<td>systemic manifestations</td>
<td>ANA+, DNA+</td>
</tr>
<tr>
<td>Hypothyroidism</td>
<td>myalgias, weight gain, constipation</td>
<td>elevated TSH</td>
</tr>
<tr>
<td>Myofascial pain syndrome</td>
<td>local pain/trigger points</td>
<td>none</td>
</tr>
<tr>
<td>Chronic fatigue syndrome</td>
<td>fatigue predominates</td>
<td>none</td>
</tr>
<tr>
<td>Lyme disease</td>
<td>myalgia arthritis</td>
<td>+ve ELISA, Western blot</td>
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</tbody>
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