Anxiety Disorder Complicating Chronic Low Back Pain

Case Study and Commentary, Mitchell J.M. Cohen, MD, and Michael J. Vergare, MD

INSTRUCTIONS

The following article, “Anxiety Disorder Complicating Chronic Low Back Pain,” is a continuing medical education (CME) article. To earn credit, read the article and complete the CME evaluation form on page 56.

OBJECTIVES

After participating in the CME activity, primary care physicians should be able to:
1. Understand that anxiety disorders are associated with increased medical utilization and morbidity
2. Know the distinguishing features of common anxiety disorders
3. Describe the clinical features of panic disorder and agoraphobia
4. Identify common sleep difficulties that complicate chronic pain
5. Know the nonpharmacologic and pharmacologic treatments for panic disorder

Anxiety disorders and chronic low back pain are common and costly conditions. Each can lead to significant medical utilization and morbidity [1–3]. The U.S. National Comorbidity Survey reported a lifetime prevalence of 24.5% for anxiety disorders [4]. Chronic low back pain is one of the most common complaints bringing patients to medical offices, and perhaps is second only to upper respiratory infections as a cause of work absence [2,5]. In a recent Australian review, low back pain point prevalence ranged between 12% and 33%, 1-year prevalence was between 22% and 65%, and lifetime prevalence was between 11% and 84% [6].

Patients with anxiety and chronic low back conditions will accumulate significant medical office and emergency department visits [7,8]. In their study of 1000 primary care patients, Kroenke and colleagues found that any physical symptom increased the likelihood of a mood or anxiety disorder by at least twofold to threefold [9]. Medical utilization rises when a psychiatric condition complicates a chronic medical condition, and high utilizers of primary care have been shown to have a high prevalence of depression and anxiety disorders [10]. Furthermore, in the presence of active psychiatric disorder, treatment of a chronic medical condition is more difficult and time consuming and has a poorer outcome. The 1996 Medical Outcomes Study demonstrated that patients with diabetes and hypertension who had comorbid anxiety disorder had significantly lower levels of functioning and well-being [11]. Psychiatric comorbidity tends to be associated with pain levels in various medical illnesses [12–14]. Therefore, identification and treatment of comorbid psychiatric disorders in the medically ill are crucial in reducing suffering, costs, and impairment.

CASE STUDY

Initial Presentation

A 44-year-old married man presents to his primary care physician with the complaints of “back pain and nervous spells.”

History

Six years ago the patient sustained vertebral fractures of L2 and L3 in falling 12 feet from a ladder. He developed left lower-extremity pain and axial back pain and subsequently was diagnosed with herniated discs with radicular symptoms in the left leg extending into the foot. After developing dysesthesias and weakness in the left foot, he underwent L3-4 and L4-5 discectomy, later followed by L3-S1 spinal fusion.

Over the past 3 years, the patient has developed significant anxiety in crowds. He reports that the anxiety sometimes builds to a “spell” of shortness of breath, fear of suffocating, diaphoresis, and an urgent feeling that he must escape the crowd and get back to his home. These episodes occur 2 to 3 times per month. When asked about specific cognitions during his anxiety spells, he states, “If I get one when I’m out, I get thoughts that someone will bump into me, knock me over, and hurt my back. If I’m at the supermarket, I’m afraid someone will run over my left foot with a shopping cart.

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Sometimes all I can think of is getting out of there. When I’m out, I hope I don’t see anyone I know, I don’t want to take time to talk. I’ll duck people if I can. I want to get home.” Often he has these attacks in a crowded public place, but he describes some occurring when he is sitting at home watching television. The patient’s wife confirms this history and adds, “I can’t stand doing the grocery shopping with him. He gets all worked up, impatient, and really loses it if the check-out line is slow. It also happened the last time we left a restaurant with my parents. There was a crowd leaving and he became very upset. It’s embarrassing. He wants to go everywhere at odd hours, when the stores and restaurants are empty. I think he’ll end up a hermit.”

The patient recognizes that his behavior is disruptive and abnormal. He states, “Sometimes I think I’m losing my mind.” He reports that on 2 occasions his wife drove him to the emergency room because he felt he could not breathe. He was discharged on each occasion. He denies any intrusive dreams of his accident or flashbacks. As a result of his symptoms, the patient also has given up a program of carefully paced walking at a local mall and has stopped going to a local gym, where he had been doing a regimen involving spinal flexion and water-based exercises recommended by his pain management team.

The patient reports that his appetite is good. When sleeping in his own bed, he gets to sleep readily, but his sleep is not restful and he awakens 2 to 3 times during the night with pain. Since undergoing back surgery, his pain has been treated with nonsteroidal anti-inflammatory drugs, a failed trial of amitriptyline to 100 mg per day, and physical therapy with a home exercise program. Currently he takes only rofecoxib 25 mg daily. He drinks 1 cup of coffee per day, drinks no tea, cola, or other caffeinated beverages, and rarely eats chocolate. There is no family history of chronic pain, neurologic disorder, psychiatric disorder, or substance abuse. He does not smoke. There is no past personal psychiatric history or significant past medical history.

**ANXIETY DISORDER**

- **What psychiatric comorbidities commonly occur in chronic pain?**

  Depression and anxiety disorders are the most common psychiatric conditions that complicate chronic pain. Based on published studies, major depression and panic disorder appear to be among the most prevalent and treatable comorbidities in the context of chronic pain [13,15–18]. Both appear to be more common in chronic pain patients than in the general population [19]. Suicide is also more common in the chronic pain population than in the general population, but less prevalent than in primary major depression [15].

**Differential Diagnosis**

The psychiatric differential diagnosis in this patient involves 3 major diagnostic domains, and then more specific diagnoses within each domain. The diagnoses to be considered at this point are mood disorder (major depression), anxiety disorder (panic disorder, post-traumatic stress disorder, generalized anxiety disorder), and somatoform disorder (pain disorder).

The clinical picture is much more suggestive of an anxiety disorder than major depression. While sleep disturbance and social avoidance are consistent with depression, prominent sadness, anhedonia, and diminished self-attitude are not present. The patient is not avoiding people due to a distorted view of himself or shame but rather because of fear of a public anxiety attack and concern that his left foot might be injured in crowds. His wanting to shop and dine out at off-hours is avoidance, a central behavioral finding in anxiety disorders. Maintaining an interest in dining out and shopping, as well as the patient’s preserved appetite, also rule against major depression.

Frequent awakenings, unrefreshing sleep, and long initial sleep latencies are among the most common sleep complaints in chronic pain patients [20–22]. Serious sleep disorders such as apnea, periodic leg movements of sleep, and restless legs syndrome all appear to have increased incidence in various chronic painful disorders, including degenerative spinal disease, fibromyalgia, headache, osteoarthritis and rheumatoid arthritis [23–27]. Intrusion of wakeful alpha rhythm into delta sleep, detected on sleep electroencephalogram, has been reported in patients with fibromyalgia and in approximately one third of chronic pain patients with heterogeneous diagnoses [28–30]. This patient’s sleep disturbances can be explained by the pain problem, without invoking a diagnosis of major depression. While he falls asleep readily, his awakenings with pain and the unrefreshing quality of his sleep are typical complaints of patients with chronic pain.

Pain disorder is a relatively new diagnostic category that first appeared in the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders*. Pain disorder replaced older, vague, and rarely used categories such as psychogenic pain and somatoform pain disorder. A diagnosis of pain disorder requires that pain be a major reason for the patient’s presentation to the physician, that the pain is limiting function and quality of life, and that the pain is not feigned. Psychiatric issues are seen as contributing to pain intensity and lessening efficacy of pain treatments but not fundamentally causing the pain. Pain in pain disorder is not
psychogenic, although psychological or behavioral factors (eg, chronically stressing an old injury against medical recommendations) may contribute to pain onset. While avoiding activities due to pain or fear of pain or reinjury can be seen in pain disorder, this patient is presenting more for anxiety attacks than intrusive pain symptoms. The central psychiatric issue at this point is anxiety, not pain.

- How can the suspected anxiety disorders be differentiated in this patient?

Anxiety often presents clinically as high concern about low-probability events. Irrational elements in this case include the patient’s persistent anxiety about suffocation despite reassurances in the emergency room that he is not in imminent medical danger. His fear of “losing his mind” and being injured in a supermarket are other low-probability events given irrational salience in his mental life and leading to isolation and loss of function.

Panic Disorder

This patient presents with fairly classic panic disorder with agoraphobia (Table 1). His episodes of anxiety are recurrent and are not confined to a specific feared context, and he has apprehension about future attacks. These features suggest that the full picture of panic disorder is present, not simply panic attacks. Panic attacks are abrupt, self-limited episodes of intense anxiety that can occur when a person is exposed to a stressor or can occur spontaneously without apparent provocation. The episodes include autonomic features (eg, tachycardia, sweating, tremor, palpitations), affective features (fear, distress), perceptual changes (paresthesias, chest pain, choking sensations), and catastrophic cognitions (fear of death, fear of going crazy, sense of impending doom) (Table 2).

In addition, the patient’s wish to avoid crowds and stay at home and the increasing isolation conveyed in his wife’s comments suggest the presence of agoraphobia. Agoraphobia is a syndrome of increasing behavioral avoidance in which individuals avoid situations and places where help might be difficult to obtain or where it would be humiliating to suffer a panic attack (Table 3). Agoraphobia leads to progressive avoidance of various public places and often leads to significant isolation, unwillingness to leave one’s home alone, and severe loss of premorbid social function. Agoraphobia can develop in the absence of panic disorder, but most typically occurs in the context of panic disorder. Panic disorder can occur with or without agoraphobia.

The patient does not have social phobia because he is not specifically fearful of humiliation in social exchanges. He is avoiding people because of fear of panic attacks and his irrational thoughts of reinjury. The social phobic will shop in a mall if he will not run into anyone he knows and need to talk. The agoraphobic will not feel comfortable in any crowded situation, whether or not there is a chance he will run into people he knows. A simple phobia involves a discrete feared stimulus, in contrast to the evolving behavioral restriction in this patient and the broad feared contexts.
The presence of major somatic complaints, including cardiac and respiratory symptoms and pain and other neurologic symptoms, is common in panic disorder [31,32]. Some data suggest the disorder may be most often missed in patients with more serious medical illnesses and high numbers of somatic complaints [33]. Katon reported pain as a presenting complaint in 81% of a sample of patients with panic disorder [32]. In another study, Katon and colleagues found that high utilizers of primary care had a 22% lifetime prevalence of panic disorder, which is at least 6 times the lifetime prevalence in general population samples [8].

Panic disorder has a genetic component, known since the 1950s, but it is a partially penetrant disorder, meaning that everyone with the genotype for panic disorder does not develop the phenotype. The disorder often goes undiagnosed and untreated. For these reasons, the disorder may skip generations, and patients may report a negative family history, as the case patient did.

**Post-Traumatic Stress Disorder**

Post-traumatic stress disorder (PTSD) should be considered here, given the extraordinary events of the patient’s fall and injury and the significant behavioral avoidance present. These are both prominent features of PTSD. The patient’s striking social avoidance and diminished function would also be consistent with PTSD. Missing in the clinical presentation, and required for the diagnosis of PTSD, are re-living the trauma in flashbacks, dreams, images or vivid memories and autonomic arousal, such as hypervigilance, irritability, or exaggerated startle response. Also, the patient can talk about his accident in providing the history without intensified anxiety.

**Generalized Anxiety Disorder**

Generalized anxiety disorder (GAD) is a common disorder with a community lifetime prevalence of approximately 5%. This diagnosis is made in one quarter of patients presenting to outpatient anxiety clinics and should be considered in any patient presenting with intrusive anxiety. Patients with GAD experience excessive anxiety about a number of life circumstances and domains. Their anxiety does not focus on concern about having a panic attack or apprehension about a particular social context (eg, crowds or supermarkets), which are both prominent clinical issues in the case patient. In contrast to panic disorder and PTSD, avoidance is not a prominent feature of GAD. For these reasons, GAD is not consistent with the case patient’s clinical presentation.

**Diagnosis**

Ruling out major depression and various other anxiety disorders, the physician makes the diagnosis of panic disorder with agoraphobia. The panic disorder has developed over the past 3 years, compounding the decreased quality of life and behavioral restrictions already present from the patient’s radicular low back pain. The physician tells the patient, “You are describing a common and treatable anxiety disorder known as panic disorder. It often occurs along with other medical problems, like spine injury. Treatment is usually quite effective, and we have a number of treatment options to discuss.”

- **How is panic disorder treated?**

**Psychotherapy**

Psychotherapy is critical in such an intrusive disorder with high morbidity. Cognitive-behavioral therapy (CBT) has been shown to be effective treatment for panic disorder [34,35]. Some CBT has been shown to be as effective as medication, although medication may act more quickly. Expert-level CBT is not readily available, but many physicians have been trained to perform important components of CBT, such as restructuring catastrophic interpretations of autonomic changes and teaching basic relaxation techniques. A regimen of both psychotherapy and pharmacotherapy is often ideal since patients respond quickly and learn some mastery skills for their panic attacks beyond simply taking their medication [35,36].

Various other behavioral treatments such as relaxation training and systematic desensitization have been shown to be quite helpful in panic disorder in terms of reducing panic attacks and especially in managing anticipatory anxiety and reversing behavioral restriction [37]. In vivo exposure to crowds and other feared stimuli, in graded fashion and with therapist or family support, can also be effective [38].

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**Table 3. Diagnostic Criteria for Agoraphobia**

A. Anxiety about being in places or situations from which escape might be difficult (embarrassing) or in which help may not be available in the event of having an unexpected or situationally disposed panic attack or panic-like symptoms. Agoraphobic fears typically involve characteristic clusters of situations that include being outside the home alone; being in a crowd or standing in a line; being on a bridge; and traveling in a bus, train, or automobile.

B. The situations are avoided (eg, travel is restricted) or else are endured with marked distress or with anxiety about having a panic attack or panic-like symptoms, or require the presence of a companion.

C. The anxiety or phobic avoidance is not better accounted for by another mental disorder, such as social phobia, specific phobia, obsessive-compulsive disorder, post-traumatic stress disorder, or separation anxiety disorder.

Pharmacotherapy

Two core clinical aspects of panic disorder must be addressed: the panic attacks themselves and the anticipatory anxiety and behavioral restriction that occur between attacks. Panic attacks and anticipatory anxiety respond to all effective antidepressants and benzodiazepines. Effective classes of antidepressant drugs include serotonin reuptake inhibitors (SSRIs), tricyclics, and monoamine oxidase inhibitors (MAOIs). High-potency benzodiazepines have also been shown to be effective [36,39,40]. Agoraphobia, when present, tends to be less responsive to treatment than the panic attacks and anticipatory anxiety. Sometimes combined therapy with benzodiazepines and antidepressants is required to bridge the period of treatment latency with antidepressants, which can last up to a month from starting the medication to treatment response.

SSRIs have become first-line treatment among the effective antidepressants and usually are tried ahead of the effective benzodiazepines when single-agent treatment is possible. SSRIs tend to be easier to dose and have a more acceptable side effect profile than other antidepressants. SSRIs and benzodiazepines are safer in overdose than the tricyclics and MAOIs. More agitation early in treatment tends to be seen with the tricyclics compared with the SSRIs [36]. Unlike benzodiazepines, SSRIs are not associated with abuse or dependence and do not show the psychomotor slowing that can occur with benzodiazepines. Finally, SSRIs tend to be the first-line choice for pharmacologic control of panic attacks since there is significant comorbid major depression associated with panic disorder. Indeed, up to 50% to 60% of panic patients have major depression in their lifetime, usually after the onset of panic disorder [41]. Various SSRIs have been shown to be effective in panic disorder, and 2 have label indications for panic disorder (paroxetine and sertraline). The high-potency benzodiazepines clonazepam and alprazolam also have label indications for treatment of panic disorder.

Combination therapy with benzodiazepines and SSRIs may be required if SSRIs or other antidepressants are only partially successful in controlling panic attacks. Benzodiazepines may also bring anticipatory anxiety under control more rapidly and allow the patient to function. Often benzodiazepines are necessary early in treatment as the patient is gaining confidence that the panic attacks are truly reduced or eliminated. Over time, benzodiazepines can often be reduced or eliminated and the SSRIs continued. After patients improve in response to pharmacologic intervention, SSRIs or other antidepressants should be continued in maintenance treatment for 12 to 18 months [37].

In the context of a chronic pain problem, the likelihood of a major depression complicating the panic disorder is high, arguing even more strongly for the use of an antidepressant over a benzodiazepine to manage panic attacks [42-45]. The choice of a SSRI in the pain patient is not as clear-cut, however, since tricyclic antidepressants have analgesic properties in neuropathic pain syndromes [46-49]. The case patient’s left lower extremity radiculopathy is a neuropathic pain syndrome, but it is not one of the classic neuropathic pain syndromes for which tricyclic therapy has been well studied. Tricyclics also may be more helpful than SSRIs for some of the sleep disturbance seen in chronic pain [50,51].

The long-acting, high-potency benzodiazepine clonazepam is labeled as an anticonvulsant, and it may have antineuropathic analgesic effects as well. Moreover, there is some preliminary data suggesting utility of non-benzodiazepine anticonvulsants in panic disorder [37,52-54]. In a patient with comorbid neuropathic pain and panic disorder who is failing more established therapies, a non-benzodiazepine anticonvulsant trial is worthwhile. Anticonvulsants such as valproate or gabapentin have antineuropathic effects [55].

Patient Education

Patient education, as in all disorders, is essential in panic disorder. Patients must be told that panic attacks will not lead to death or other catastrophe. They should also be told they are not “going crazy” or “having a nervous breakdown.” Significant others should be similarly reassured. In addition, patients should be advised to eliminate caffeine intake in coffee, tea, other beverages, and chocolate. Caffeine can increase anxiety generally and panic attacks specifically.

Treatment

The patient is prescribed the tricyclic antidepressant nortriptyline because of its potential to help with his radicular pain and sleep problems. However, he experiences sedation and tachycardia; the tachycardia leads him to ruminate about heart attacks. He is titrated to 75 mg of nortriptyline daily over 3 weeks before side effects lead to discontinuation. He had previously failed a trial of amitriptyline. At 3 weeks, the physician prescribes a trial of paroxetine 20 mg at bedtime. In the first 4 weeks of treatment, the patient also requires alprazolam 1 to 2 mg 3 to 4 times daily to manage his anticipatory anxiety and allow him to function.

Three weeks after initial evaluation, the patient begins to improve, and relaxation training and exposure assignments are initiated at the third visit. The patient and his wife are instructed to shop together at progressively busier times, with the patient using deep breathing and imagery exercises taught prior to these outings. Ultimately, the patient is assigned to move during busy store hours alone. He returns to his mall-walking and the gym, initially with his wife, then independently. The alprazolam is tapered to 0.5 mg 3 times daily as needed after the first month of treatment. In the
course of treatment, he uses approximately 30 0.5-mg doses per month.

Over 10 weeks of treatment, the patient’s panic attacks resolve, he becomes comfortable again in crowds, and he is able to go out socially without concerns about foot injury or suffocation.

Conclusion

Comorbid psychiatric disorders can substantially reduce the efficacy of treatments for other medical disorders and increase treatment cost. Anxiety and depressive disorders are among the most common comorbid disorders seen in outpatient medical offices and are responsible for functional impairment equaling that associated with nonpsychiatric medical illness [56]. Data suggest comorbid psychiatric conditions are inadequately treated in the primary care setting [57]. Proper identification and treatment of panic disorder with agoraphobia in this patient with radicular low back pain led to control of panic attacks and enabled the patient to return to his physical therapies as well as regain other social functioning. As occurred in the case presented, reduction in anxiety and depression have been demonstrated to improve patient compliance with medications and facilitate adaptation of positive behavioral changes (eg, in exercise and diet) [58]. Careful diagnosis followed by pharmacologic and nonpharmacologic treatments can significantly improve clinical outcome for the psychiatric condition as well as the medical problem.

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