

COMPLEX REGIONAL PAIN SYNDROME, TYPE I

CASE REPORT, BY NATALIE L. RESTIVO, MD, MPH

Complex regional pain syndrome, Type I, or sometimes reflex sympathetic dystrophy, is a neuropathic pain problem that typically develops after a painful event that may or may not be traumatic. Pain can be distracting, and functional impairment can interfere with safe aircraft operation and emergency egress. This case report describes an applicant diagnosed with the syndrome and how his aviation medical examiner worked the application to achieve an outcome.

History

A 20-YEAR-OLD MALE PRESENTED to his aviation medical examiner for a third-class student pilot certificate. He related that during his senior year in high school, he had sustained a neck injury while competitively wrestling. Subsequent workup for this injury was negative, and the applicant was treated symptomatically with complete resolution of his symptoms. However, he began to experience left toe pain and a persistent low-grade headache by the end of his senior year. The foot pain progressed over about a month to include both legs up to the hips.

After an exhaustive workup by various specialists and unsuccessful treatment with a variety of treatments, he was diagnosed with complex regional pain syndrome (CRPS), Type I of the right and left lower extremities. The applicant received three para-spinal lumbar sympathetic nerve blocks over a 2-month period the same year. He responded well to this treatment, and by the third nerve block, was pain-free with full use of his lower extremities.

In addition, he received psychotherapy and biofeedback for approximately 6 months and was diagnosed with adjustment disorder with mixed anxiety and depressed mood due to his distress related to his medical situation. His psychologist felt that the patient had made wonderful progress and had successfully resolved his issues. He has remained asymptomatic, pain-free with full mobility, and engaged in routine athletic activities without limitation for approximately one year.

Aeromedical Issues

The primary aeromedical concerns associated with CRPS are related to incapacitation from the disease itself and the medications and modalities used to treat this condition. Pain associated with CRPS can be distracting, and functional impairment can interfere with safe aircraft operation and egress in the event of a mishap. While pain associated with CRPS is typically constant, symptoms can be waxing and waning in nature. For this reason, it is important to document a sufficient period of symptom control.

COMPLEX REGIONAL PAIN SYNDROME TYPE I

Complex regional pain syndrome, Type I (CRPS), also known as reflex sympathetic dystrophy (RDS), is a neuropathic pain problem that typically develops after a painful event that is not always traumatic (1).

It is characterized by allodynia, hyperalgesia, or spontaneous pain that is typically not in the distribution of a single peripheral nerve (1). Edema, cutaneous blood flow abnormalities, and sudomotor abnormalities can be present in the affected area, and there is an absence of any other condition to account for these symptoms (1).

Symptoms usually present within 1 month of the precipitating event (2). Psychological stressors can exacerbate the pain associated with CRPS but has not been found to be causal in this disease process (2). Prevalence of severe, chronic CRPS is < 2%, but mild CRPS can occur after up to 40% of fractures and surgical trauma (2). An interdisciplinary approach to pain management emphasizing functional restoration may be most effective in treating this complex disease (3).

Occupational therapists and physiotherapists focus on desensitization and improving functionality while psychologists focus on the anxiety, depression, and avoidant behavior associated with chronic pain (3). Regional anesthetic techniques can be utilized for patients with moderate-to-severe pain that is non-responsive to other treatments, have severe sympathetic dysfunction, or who improve after a diagnostic sympathetic block (1). Most pharmacological treatments for CRPS are empirical, with few studies showing efficacy for this particular disease (4). Because of overlapping, physiological mechanisms of neuropathic pain, treatments that are effective in treating diabetic neuropathy and postherpetic neuropathy such as tricyclic antidepressants, serotonin-norepinephrine reuptake inhibitors, opiates, and certain anticonvulsants may be helpful in treating CRPS (4). The problem with these medications is that, with the exception of four of the SSRI medications, the medications are unacceptable for medical certification for any class.

Role of the AME

The general medical standards for medical certification annotated in Title 14 of the Code of Federal Regulations Parts 67.113, 67.213, and 67.313 include no functional or structural disease, defect, or limitation that makes the applicant unable to safely perform the duties or exercise the privileges of being an airman. CRPS is a challenging entity to treat, and prognosis is typically better if treatment is begun within 3 months of the first symptoms. It is critically important that an applicant demonstrate that he is pain free, has full functionality, and is

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taking no medications or undergoing any treatment that is incompatible with flying for a period of time long enough to determine that the disease process is under adequate control prior to consideration for medical certification. All pertinent medical records and treatment should be forwarded to the Federal Aviation Administration for review. While CPRS is not specifically disqualifying, aviation medical examiners should consider the airman's risk of incapacitation related to the disease itself and the medications and modalities used to treat this disease.

Outcome

This applicant was eventually issued a third-class student pilot time-limited certificate for 12 months. At that time, he was to submit a certification status report.

References

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4. Mackey S, Feinberg S. Pharmacologic therapies for complex regional pain syndrome [Curr Pain Headache Rep. 2007] - PubMed - NCBI [Internet]. [cited 2011 Dec 12]; Available from: www.ncbi.nlm.nih.gov/pubmed/17214920



About the Author

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BY BRENDA WENZEL, PHD

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Dr. Wenzel is a research psychologist in the Aerospace Human Factors Research Division.