What's in your black box? Musings of a hand surgeon

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A while ago I was approached by one of our senior residents who was scheduled to start her rotation in our Hand Program. She told me that she was a bit anxious, because she felt that the wrist had always been the 'black box' for her. After I reassured her that she would learn all about the wrist by the time she finished the rotation, a thought occurred to me that I also had a 'black box', but instead of the wrist, some current diagnoses in the upper extremity had caused me some concerns. Since at the present my part-time practice is confined to hand consultations, I thought that I had better open this box of mine and do some armchair research. This of course was conducted with the help of Dr Google. I thought that I would share some of my findings with you.

I recently met a 40-year-old lady who was referred by her family doctor for a second opinion (after the initial visit I learned that I was number 4!).

Very briefly, I learned that she was a factory worker (Workplace Safety & Insurance Board positive) who had fallen at work approximately six months ago, injuring her right dominant hand. Since that time she had been experiencing severe pain and had not returned to work. She came with a copy of numerous previous investigation reports that included x-rays, magnetic resonance imaging and electromyograms – all within normal limits. I also learned that she had been having ongoing problems with her employer and the Workplace Safety & Insurance Board.

Physical examination was less than satisfactory. She had 'global' wrist pain and numbness and tingling in all of her fingers.

What is the diagnosis, and where do we go from here?

I believed that this was a form of a somatization disorder, and opened one section of my black box. I learned several interesting things.

There is very little in the surgical literature, and most of the information was found in the psychology literature. The etiology is poorly understood and the most common etiological explanation is that there are internal psychological conflicts that are unconsciously expressed as physical signs, such as pain. The most common characteristic of this disorder is the appearance of physical symptoms for which there is no organic or anatomical basis. These symptoms tend to range from sensory or motor disability to hypersensitivity to pain.

What are the management (diagnosis and treatment) strategies?

Because there are no specific tests, the diagnosis is based on physical examination, ie, negative findings or the absence of

findings based on anatomical distribution. It is important to explore psychosocial issues – look for possible needs for secondary gains, which could be monetary (legal, compensatory) or emotional. At the same time, one has to make sure that one has not missed a rare diagnosis. In the upper extremity, a bone scan, if negative, may be useful.

Some treatment strategies that I have found useful: Never deny that the patient has pain; it is better to admit that you do not know the source of the pain. Reassure the patient that there is no evidence of serious disease. Explain the difference between pain and harm, and thereby encourage the use of the hand. Discuss strategies on how to deal with the pain. If possible, try to solve the secondary gain problems, such as legal issues or compensation. Consider referral to psychology or psychiatry.

Myofascial pain syndrome

Is this a real diagnosis or a waste paper basket for conditions without a commonly accepted diagnosis? The condition is defined as "a chronic form of muscle pain, centering around sensitive points in the muscle – 'trigger points'". The pain can also spread throughout the muscle.

Etiology: The etiology is generally unknown. We do know that collagen fibres within the muscle are continuous with those of the tendon. We also know that tendon length varies not only in different muscles, but also from person to person, most likely determined by their genetic make-up. It also becomes clear that some muscles are simply not suited for certain tasks.

Risk factors: There are also a number of risk factors. One risk factor is muscle injury, whether it be acute, chronic or repetitive. Age is another; myofascial pain syndrome is most commonly seen in middle-aged individuals. It is thought that a younger individual's muscles can better cope with stresses and strains, so they are less likely to experience myofascial pain syndrome. A third risk factor is female sex. The incidence of myofascial pain syndrome is more common in females than males; the reason for this is unknown. Stress and anxiety are also implicated in myofascial pain syndrome. People who frequently experience stress are more likely to clench their muscles, thus developing trigger points.

Diagnosis: Diagnosis is based on history and physical examination.

History: Poor or faulty ergonomics either in the work place or recreational activities, such as exercises, sports or playing musical instruments.

Physical examination: Rule out other, well-recognized conditions, such as radial tunnel syndrome in the forearm. Look for consistent trigger points, the main key to the diagnosis of myofascial pain syndrome.

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Treatment: Treatment consists of correction or modification of ergonomics at work or play. This may involve a change in jobs or recreational activities. Treatment may include physiotherapy, such as myofascial stretching, massage or compression braces, such as those sometimes used in the treatment of the 'tennis elbow'. Another form of treatment is trigger point injections for both diagnosis or treatment. In addition, medications such as muscle relaxants, nonsteroidal anti-inflammatory drugs or antidepressants may be used. The role of the surgeon is only as a diagnostician.

Repetitive stress disorder

Repetitive stress disorder is also known as repetitive stress injury, cumulative trauma disorder and soft tissue pain disorder.

I would prefer to use the term soft tissue pain disorder because not all of these types of disorders are related to repetitiveness or trauma, and the short form of repetitive stress disorder (RSD) has been used for reflex sympathetic dystrophy. The question in my mind, however, is will the Workplace Safety & Insurance Board or insurance agencies accept this term?

Repetitive stress injury is defined as those conditions of muscle, tendon, bone and nerves that are caused, precipitated or aggravated by repeated exertions or movements of the body. It is not a specific diagnosis but rather a class of disorders with similar characteristics.

Repetitive stress injuries can be divided into the following subcategories:

- Muscle, characterized by myalgia and myofascial pain syndrome.
- Tendon, characterized by tendonitis, trigger fingers, tennis and golfer's elbows and de Quervain's tenosynovitis.
- Nerve, characterized by carpal tunnel syndrome, cubital tunnel syndrome, radial tunnel syndrome, anterior and posterior interosseous syndrome, thoracic outlet syndrome and pronator syndrome.
- Joint, characterized by synovitis and hypermobility syndrome.

Symptoms: Symptoms of repetitive stress injuries depend on the location and specific tissue involvement. Common complaints include pain, fatigue, loss of dexterity, weakness, numbness and tingling distally. All of the above may lead to depression and loss of sleep.

Occupational risk factors: Occupational risk factors include repetitive and/or sustained postures, forceful exertions and localized mechanical stress.

Treatment: Treatment is multifaceted and, ideally, multidisciplinary, involving ergonomists, hand therapists, psychologists and physiatrists. Surgeons have a limited role in the overall treatment with the exception of operative management where indicated.

Although my arm chair research has cleared up some of the contents in my black box, as usual it has raised a lot more questions. Are some of the diagnoses really related to repetitive trauma (carpal tunnel syndrome and trigger fingers, to mention a few)? Are some of these complaints not simply related to job dissatisfaction? Should we, as surgeons, not accept the fact there is no satisfactory solution for some of these complaints, and suggest either modified duties on a permanent basis or a change in jobs? Should we have to realize that some individuals are simply not built to do certain jobs?

If you do not have a black box, that is ok. But if you do, a look inside may be worthwhile and beneficial. It was for me.