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Letter to the editor Open Access

Sleeping on the Painful Shoulder: Always a Bad Night's Sleep

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Letter to The Editor

As orthopaedic surgeons, with a keen interest in shoulders, we commonly come across the patient who complains of pain with overhead activities and difficulty lifting heavy weights. A more common, and often subtler, complaint that points to shoulder pathology is pain sleeping on the affected shoulder at night. Many patients with shoulder pathology describe a deep aching pain to the shoulder at night made worse by the application of pressure while sleeping on the affected shoulder. The cause of this nocturnal sleep pain is unknown. It may be explained by biomechanical or biochemical causes.

Sleeping on the affected shoulder rests the weight of the body (especially the upper torso) on the shoulder joint, which increases glenohumeral contact forces across the joint. To combat this, the human body has adaptive muscular mechanisms, primarily the rotator cuff stabilizers and the accessory shoulder muscles. In a study of 66 female subjects, Mork and Westgaard found that the deltoid was highly active during the sleep on painful shoulders, with the biceps, trapezius and hand flexors were not significantly different between the painful and pain-free shoulders. Further work is needed to study the musculature around the shoulder joint and its possible contribution to night pain.

The nocturnal shoulder pain may also be related to biochemical causes. Inflammation at night, with associated release of interleukin-1B and tumor necrosis factor-α may stimulate the local nerve endings through unknown mechanisms. Blocking the nerve supply to the shoulder certainly results in a decrease in the associated pain of glenohumeral arthritis [1]. Further, a recent study found that the same cytokines may stimulate expression of melatonon receptors 1A and 1B, and acid sensing ion channel 3 in the subacromial bursa and joint capsule [2]. Luzindole, a melatonin-receptor antagonist, reversed melatonin stimulated ASIC3 expression and IL-6 production. Clearly this is an exciting field that needs further work.

Interestingly, a recent study of 83 patients with unilateral shoulder pain found that patients preferred to sleep on their painful side [3]. This may suggest that the shortening of the capsule stretch by pressure may actually reduce pain.

We as orthopaedic surgeons have long been aware of this symptom and is one of the first questions we ask to a patient that presents to our clinic with a painful shoulder. Our confidence in this screening question is reflected in it being employed in a variety of tools designed for clinical and academic purposes [4-6].

In an attempt for symptomatic management of these patients, we commonly prescribed analgesics and anti-inflammatory medications that do not act centrally. The results are satisfactory, with the patients often stating that they are able to elevate their shoulders and have improved sleep. However, in our practice, sleep does not return to baseline for weeks to months after improvement in pain and function. Patients state that sleep is fine, but on further probing often rescind this statement.

What is clear is that the only cause of poor sleep in these patients is not simply pain. As outlined above, multiple factors (both biochemical and biomechanical) are at play, often in tandem. Like chronic pain alters the central nervous system so that patients post joint replacements continue to experience pain despite the joint being replaced, similarly a centrally acting mechanism for poor sleep may exist specific to shoulder pathology. Thus, despite the best of our efforts we may not fully overcome nocturnal shoulder pain.

Clearly, there is much sleep for us to lose for our patients to have a good night's rest.

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