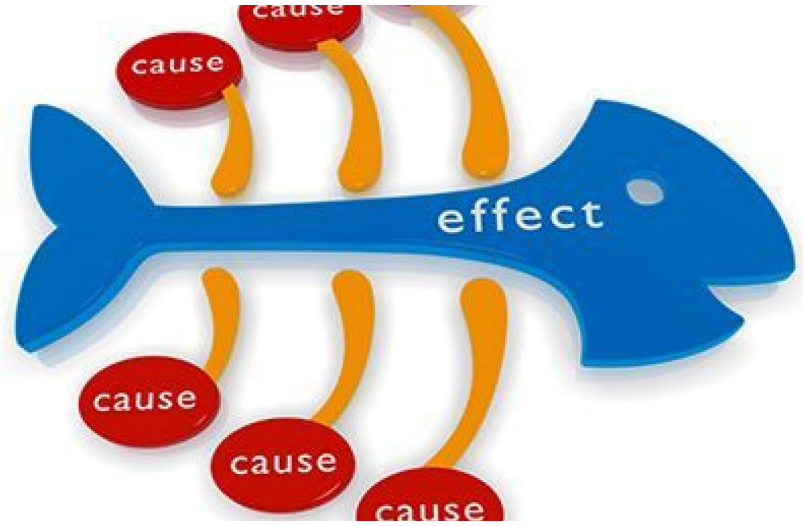
Dynamic Chiropractic



CHIROPRACTIC (GENERAL)

A Subtle Cause, a Simple Solution

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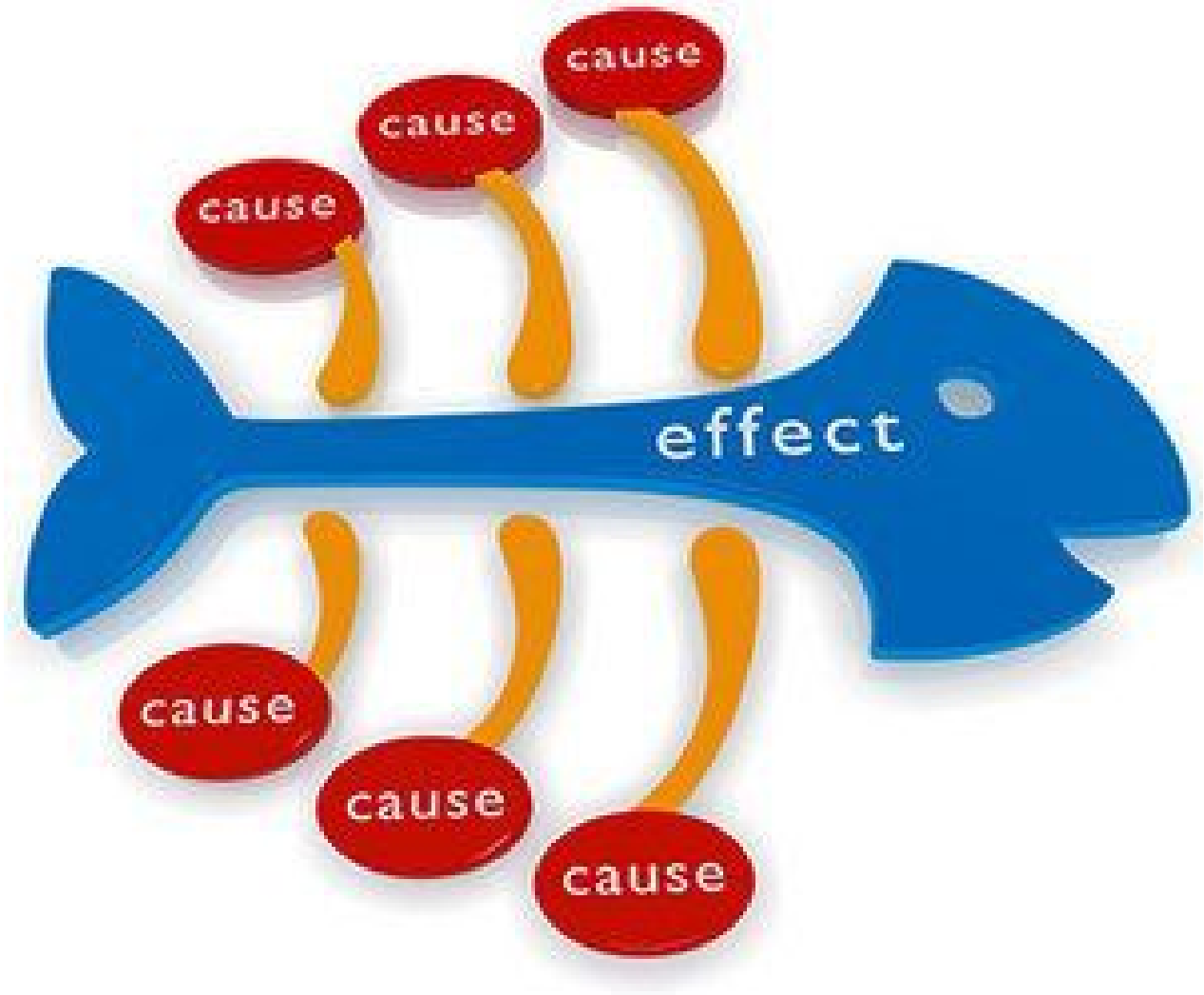
Charlie, a 54-year-old restaurant owner, entered a chiropractic office complaining of numbness and tingling in his right arm from the elbow to the ring and little fingers. The numbness had been present for approximately 30 days and had seemingly developed overnight. The patient had no explanation for the presence of the symptoms.

Charlie had not sought care for the condition specifically, but he had mentioned it to his medical doctor during a recent visit for another condition. The MD told Charlie he probably had a pinched nerve in his neck and offered to refer him to physical therapy. Charlie declined the offer. Charlie was previously a patient in the chiropractic office, having been successfully treated for lower back problems. Charlie stated, "When the doc told me it was probably a pinched nerve, I knew I needed to see the chiropractor".

Patient History

The patient's history was not remarkable. There was no previous history of the same complaint, no recent trauma to the extremity and no significant change in physical activity in the past 30 days. The patient denied neck injury and/or pain.

The complaint was initially noticed after driving for periods of more than 30 minutes, which occurred daily, and it was now waking the patient nightly. The DC noted that the patient's left arm was very tan compared to the problematic right arm. The doctor asked Charlie if he had been resting his arm on the car door next to the window while driving. Charlie confirmed he had and that he had suffered a significant sunburn from the habit before the arm began to tan.



The doctor told the patient he recognized the phenomenon, as he had experienced it himself. He had been sunburned while resting his arm on the door frame of a moving truck with the window open when he drove Davenport, Iowa to attend chiropractic college.

The patient related that the doctor was not the first to notice the difference in his skin color. He seemed annoyed when describing how other people pointed out the differences in his arms. In response, he had begun driving with his left arm to keep it away from the window and prevent further burning or tanning.

This information prompted the doctor to ask a few additional questions: "Why are you driving so much these days? Where are you placing your right arm when you are driving? What position do you sleep in?"

Charlie told the doctor he had opened a second restaurant in a neighboring town about 40 minutes away and was driving to the location daily. It was during this drive time that he received the sunburn and tan. Now, he was driving with the left arm while resting the right arm on an armrest between the front seats. Charlie also said he slept in a fetal position on his right side.

Examination / Diagnosis

Examination of the patient's cervical spine was completely unremarkable. Sensation testing of the ulnar nerve, C8 nerve root and adjacent distributions was within normal limits bilaterally. Motor and reflex function in the upper extremities were within normal limits. Tinel's test over the ulnar

nerve at the elbow was negative bilaterally. The elbow flexion test was positive on the right, reproducing the patient's chief complaint and confirming suspected irritation of the ulnar nerve at the medial posterior elbow. Tests for thoracic outlet syndrome were negative.

This history and exam findings prompted a trip to the parking lot to have the patient demonstrate how he positioned himself while driving. The demonstration confirmed the doctor's other suspicion. The patient was resting his right medial elbow on the corner of the armrest, placing pressure directly over the ulnar nerve.

Once the source of the problem was identified, treatment consisted of a change in driving positions and the use of two cheap, elastic elbow sleeves while sleeping. The sleeves made it difficult to maintain the flexed elbow posture in the fetal position. Prolonged flexion of the elbows while sleeping in the fetal position places pressure on the ulnar nerve. The elbow flexion test uses the flexed elbow positioning to reproduce the patient's chief complaint when ulnar nerve pathology is suspected at the elbow.[1] This mechanism was responsible for the positive test result in this case.

The history of the presenting illness in this case was the paramount diagnostic factor. The history also served (as it should) in helping the doctor select the orthopedic tests used.

Orthopedic Testing

Tinel's test is performed by tapping directly over the location of a peripheral nerve where it passes superficially through a region. At the elbow, the examiner taps over the groove between the olecranon process of the ulna and the medial epicondyle of the humerus. Tapping is performed using either the fingers or a reflex hammer. A positive test is the reproduction of the patient's neurological symptoms.[2] Tinel's test has a roving nature, as it can be performed in several areas throughout the body.

The elbow flexion test as listed above is designed to place traction / pressure on the ulnar nerve. The patient is instructed to fully flex both elbows and hold the position for five minutes or until symptoms are reproduced, whichever comes first.[1]

Charlie's ulnar pathology was acute and resolved shortly after the initiation of treatment. There are cases in which ulnar pathology at the elbow can be chronic, leading to sensory and motor dysfunction. In some of these cases, motor weakness results in persistent abduction of the little finger. The persistent abduction causes the finger to catch on the rim of a pocket, making it hard for the patient to place items in the pocket or retrieve them. This phenomenon is the basis for Wartenberg's test for ulnar nerve entrapment / pathology.

In Wartenberg's test, the patient is asked to place an object in a front pocket and then retrieve it. If the little finger catches on the rim of the pocket, the test is positive.[3] Wartenberg's test can be confirmed by using the little-finger adduction test. The patient is asked to adduct their abducted little (pinky) finger. If the finger cannot be adducted, the test is positive for ulnar entrapment / pathology.[3]

Wartenberg's test has another description. In the second version the patient is asked to place their hand on a flat surface with the fingers abducted. The patient is then asked to adduct the fingers. Failure of the little finger to adduct is a positive test.[3]

In chronic entrapment cases treated medically, the ulnar nerve is frequently relocated. The nerve

is surgically moved from the groove between the olecranon process of the ulna and the medial epicondyle of the humerus to a location in the anterior medial cubital fossa. The ulnar nerve no longer bends around bony structures when the elbow is flexed, reducing tension or entrapment.

Key Points

In diagnosis of ulnar pathology, it is important to remember that the ulnar nerve also passes through Guyon's canal, formed by the hook of the hamate bone and the pisiform bone at the wrist. If entrapment / pathology of the ulnar nerve originates here, then symptoms occur from that point distally.[2]

Thoracic outlet syndrome may also produce symptoms similar to those described by this patient.[1] Thoracic outlet would have been a stronger diagnostic possibility if the patient had reported a sleeping position whereby his arms rested above his head. Tests for thoracic outlet were negative in this case.[1]

Additionally, as chiropractors are well-aware, the cervical spine can also be a source of symptoms similar to those reported by Charlie, but Charlie's cervical evaluation was unremarkable.

While the spine is usually the primary focus of the majority of chiropractic cases, and extremity signs and symptoms are common in spinal conditions, it is good to remember that symptoms can emanate strictly from the extremities themselves. This case is a good example of this point. It is also a good example of how conservative, simple treatments can be very effective.

References

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2. Magee DJ. *Orthopedic Physical Assessment, 2nd Edition*. Philadelphia, Saunders/Elsevier, 2002.
3. Waldman SD. *Physical Signs of Pain, 2nd Edition*. Philadelphia, Saunders/Elsevier, 2010.

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