

Cervical Whiplash and TMJ

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"Cervical whiplash" or the extension-flexion injury is the most common cervical insult associated with motor vehicle acceleration-deceleration accidents.

Whiplash is more common in rear-end collisions, but can occur with front or side impacts. Interestingly enough, the amount of damage to a vehicle does not correlate to the damage to the patient.

Similar injuries can also be sustained during skiing or horseback riding accidents.

Following a rear-end collision or sudden deceleration, a flexion-extension-type of trauma takes place which is characterized by the contraction of the anterior cervical muscles.

The combined forward head, neck and shoulder girdle posture and the increased muscle tension cause the head to move to a posterior elevated position with an anterior cervical spine muscle contraction. This is done to maintain the horizontal leveling of the cranium required for equilibrium.

The direct consequence is the beginning of an acute muscular spasm, which if left untreated, can become chronic .

Injury sustained in whiplash results in persistence of the symptoms with intense muscle spasm as well as a compounding effect of traumatic emotional stress.

Symptoms following motor vehicle accidents are usually delayed for hours, days, or longer.

The pain can radiate to the TMJ.

However, since this is a gradual process and may take weeks or months, the patient may not always make the connection between the motor vehicle accident and subsequent TMJ pain. The pathogenesis of post-MVA whiplash is related to the relationship of the mandible and the cranium.

Following sudden accelerations and decelerations, there is a certain amount of delay in mandibular movements as compared to the rest of the head.

The mandible may assume a distal position with stretching of the retrodiscal tissues and possible compression of the meniscus.

Joint sound now present is due to a distalization of the condyle due to cranial elevation along with a previous anterior position of the disc in the glenoid fossa.

The described mechanism acts negatively on the ligaments and on the articular capsule, the external and inside pterygoid muscles the temporalis and the masseter.

The symptomatology of post-MVA whiplash can be variable depending on the presence of pre-existing articular lesions or a simple case of joint overloading (such as altered occlusal interferences). Symptoms can be temporary.

However, if the trauma acts directly on already compromised joints, the symptoms can be more serious. In these situations it is not uncommon to observe the onset of condyle-disc incoordinations with the presence of a mutual click or, more seriously of true articular blocks for inside luxation of the meniscus.

The diagnosis of such problems has been made much easier with the help of functional investigation of the masticatory apparatus particularly surface electromyography of the masticatory and cervical muscles.

This examination allows better diagnosis and allows one to monitor muscle responses to different modes of therapy.

The treatment of post-MVA whiplash presents a problem of notable complexity. The multifactorial nature of this condition dictates a multidisciplinary approach including medication for chronic pain, counseling, physical therapy, acupuncture, hypnosis, and biofeedback. The outcome of treatment depends on many factors: the amount of time that has passed since the trauma, the existing conditions of the joints and the occlusion, the state of morpho-functional equilibrium of the masticatory apparatus generally and of the occlusion particularly. The presence of existing cervical myopathy constitutes one of the more important obstacles to the attainment of a good result. If this obstacle can be removed, the treatment is more effective. Spasm in the cervical musculature could lead to TMJ dysfunction and chronic headache.

In conclusion, when treating post-MVA whiplash, the resolution of the muscular spasms and the correction of occlusal deviations is of utmost importance.

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