



## WHIPLASH SYNDROME AND FORENSIC APPROACH. A CASE REPORT

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### SUMMARY

The same day as being involved in a traffic incident as a pedestrian hit by a car, a middle-aged woman accessed emergency medical care and was later discharged. After two days the patient returned to emergency with complaints of neck pain. X-rays were conducted and she was immobilized with a cervical collar. Since the pain persisted, she was examined a few days later by physiatry, where a limitation in the arc of motion of the neck was found and whiplash was considered a possibility.

This type of cases related to chronic posttraumatic pain are relatively common in clinical consultation and represent a great challenge for physicians, mainly in the forensic field, since there are often many symptoms and very few signs to identify the damage. Therefore, a forensic doctor must recur to the clinical history and carefully examine the mechanism of injury and the

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evolution of the clinical presentation, in addition to calling on other disciplines such as orthopedics, physiatry, psychiatry and pain medicine to issue a definitive concept.

**Keywords:** Whiplash; Clinical forensics; Traffic accident.

## INTRODUCTION

Whiplash is caused by the acceleration-deceleration mechanism that transmits energy to the cervical spine (1,2,3). This generally occurs in traffic collisions, which causes forced flexion and extension of the spine and can also cause forced lateral movements of the head.

The frequency of injuries produced by whiplash after traffic accidents varies from country to country (and even within regions), and depends on many factors such as the number of vehicles per inhabitant, traffic safety laws and indemnization systems, among others. It is worth noting that increasing incidence of whiplash in the United States and Western Europe over the last 30 years, along with the high financial cost, reported at 3 billion pounds annually in the UK (1).

As for the type of damage, the Quebec classification (4), widely accepted in literature around the world, establishes the severity of symptoms in 4 grades:

**Grade 0:** no symptoms in the neck or physical signs

**Grade 1:** neck symptoms only (pain, stiffness or pain upon palpation with no physical signs)

**Grade 2:** musculoskeletal signs are added

**Grade 3:** neurological signs are added (reduction or absence of deep tendon reflexes, weakness and sensory deficit)

**Grade 4:** neck symptoms and cervical fracture or dislocation

Other symptoms may be present such as dysphagia, tinnitus, temporomandibular joint symptoms, vertigo, lower back pain, dysphonia, headaches or vegetative symptoms.

## CLINICAL HISTORY

A 45-year-old woman who was hit by a car when crossing the street was subsequently examined in the emergency room at a third-level clinic. She received analgesic care and was later released.

Two days later, the woman sought emergency treatment once again for severe neck pain. X-rays were conducted and the neck was immobilized with a cervical collar for 20 days. Since her injuries were caused by a traffic accident, a medical-legal evaluation was ordered.

Six days after the accident, the first medical-legal report was issued with findings of immobilization with the cervical collar and subgaleal hematoma in the occipital region. Pain in the right shoulder and left leg was also reported. Given these findings, a blunt causal mechanism was identified and provisional medical-legal incapacity was indicated for 20 days. 14 days later, a new medical evaluation was conducted in which the patient was prescribed a bone scan and management with physiotherapy.

In the second medical report, written a month after the first one, limited neck movement due to pain was observed, and it concluded in a new provisional medical-legal incapacity for 25 days. Another bone scan and neurosurgical evaluation were requested.

The following month, the patient was diagnosed with lower back pain and posttraumatic back pain, and the patient reported an improvement from the treatment (reduction especially in lower back pain, though cervicogenic pain persisted). With the cervical spine X-ray, in which no signs of fracture were observed, the bone scan revealed hypercaptation in the left sacroiliac joint

and acromioclavicular joint, without hypercaptation at the cervical or lumbar level. The patient presented with symptoms of neck pain (possibly due to whiplash) and posttraumatic lower back pain, for which she was prescribed physical therapy, analgesics and follow-up consultations the following month.

The third medical-legal report was carried out a month later. In it, evaluation from psychiatry was indicated with imaging studies, with which definitive medical-legal incapacity was found necessary.

20 days later, the patient was examined by psychiatry due to the persistence of cervicogenic pain. The results of the cervical X-ray showed no signs of fracture while the bone scan showed hypercaptation in the left sacroiliac joint, without hypercaptation at the cervical or lumbar level. A diagnosis was made of possible whiplash and posttraumatic lower back pain, prescribing management with analgesics and physiotherapy.

A few days later, an MRI was conducted on the patient and indicated slight chondritic changes with bulging of the annular fibers between C3 and C6 and slight changes in slight facet arthrosis in C5-C6 and C6-C7 without myopathy.

The fourth medical-legal report showed limitation to the arc of cervical motion, reporting limits to the patient's daily activities.

## DISCUSSION AND CONCLUSIONS

Whiplash presents a great challenge to physicians at all levels since there is disparity between the large symptomatology and the few findings from clinical examinations that can be supported in the results of diagnostic imaging. Therefore, it is necessary to take a comprehensive approach with all the technical and scientific tools available to objectify the complaints of the patient and make them

supportable in order to rule out the possibility that the patient's symptomatology is not due to neuropsychiatric disorders or a desire for financial compensation.

In this case, a few criteria for medical-legal evaluation of whiplash were considered, as reported by Sánchez et al. (5):

- Onset of symptoms in the first 72 hours.
- Presence of signs and symptoms described in medical literature.
- A mechanism of injury that can account for whiplash syndrome.
- A clinical history is very useful since it may eventually show the absence of previous neck pain, requiring evaluation by specialists to demonstrate a significant increase that could affect quality of life.
- To determine the medical-legal ramifications of the case, the presence of pain of a magnitude that obliges the patient to consult doctors frequently and receive treatment must be proven, with the concept of pain clinic being important.

After applying these criteria to the case at hand, we found that the patient had an injury that was not typical of whiplash (she was run over by a car) though it does not rule out whiplash. Within 48 hours of the traum, the patient sought medical care based the typical clinical presentation described in medical literature: intense cervical pain and limited cervical movement. Though X-rays of the cervical column and bone scans taken two months posterior to the accident did not show anatomical damage, this lack of findings from imaging is frequent and also described in medical literature.

Three months later an MRI was conducted that showed slight osteoarthritic changes and facet compromise, which can be associated to the trauma suffered. The patient underwent

nine medical and medical-legal evaluations in a period of three months. The patient reported limitations to carrying out daily activities and the physician continued to find limitations in the cervical arcs of motion. There is no record in the clinical history gathered of a background of cervical pain from other causes.

From the forensic point of view, and taking into these elements of judgment, it was considered that the damage is worth a 25 days final forensic inability; in addition, as a medicolegal sequel, it presents a functional disorder of the musculoskeletal system, whose temporary or permanent character will be defined through the evaluations provided by the Pain Clinic, Physiatry and neurosurgery.

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