

# Valutazione delle lesioni dell'articolazione temporo-mandibolare: danni iatrogeni e traumatologici<sup>1</sup>

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## Introduction

Pathologies of the temporomandibular joint (TMJ) belong to a wide and heterogeneous group of conditions termed temporomandibular disorders (TMD) (1).

TMJ disorders are the most frequent cause of non-dental chronic pain in the orofacial region (2), and their high prevalence has been described in several worldwide papers (3-5).

Some TMJ disorders can be the result of iatrogenic or traumatic events, thus requesting a medical legal appraisal. Therefore, a comprehension of etiopathogenetic mechanisms leading to their onset and a description of the currently available diagnostic and treatment techniques may be useful in the medical legal setting as well (6).

## Etiopathogenesis

A medical legal assessment in cases of litigation for temporomandibular joint disorders of supposed iatrogenic is a difficult task to perform. The hypothesis of a causal link between a medical/dental act and the onset of TMD symptoms has to be verified by taking into account for some basic concepts about the etiology of these disorders (7).

Temporomandibular disorders recognize a multifactorial etiology in a biopsychosocial frame, with a multiplicity of factors (i.e. parafunctional

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activities, occlusal abnormalities, increased joint friction, psycho-affective disorders) that may play a potential causal, predisposing, triggering or perpetuating role (8).

Unfortunately, usually little can be known about the relative role of these factors at the patient's level, to the point that the term "idiopathic" has been proposed to describe the origin of TMD symptoms in many cases (9).

## Diagnosis

Due to uncertainties about their etiology, currently available TMD classifications are mainly symptoms' based (10), and standardized clinical assessments are the standard of reference for patients' evaluations among expert practitioners and academic authorities (11,12)

Indeed, there is currently agreement among scientists that the standard of care for TMD diagnosis is a thorough clinical examination performed according to a validated diagnostic scheme and reliable and repeatable techniques (13).

Available evidence suggests that a clinical evaluation performed by a trained investigator according to calibrated manoeuvres has a good diagnostic agreement with magnetic resonance (MR), which is the standard of reference among imaging techniques for the depiction of soft tissues, for at least the two main groups of joint disorders (disc displacements, inflammatory-degenerative disorders) (14,15).

There is agreement that the diagnostic process for temporomandibular joint disorders may be integrated with the adoption of appropriately selected imaging techniques but, by contrast, it has been demonstrated that there is no place for electronic devices in the diagnostic or treatment planning phases (16,17).

## Treatment

There is consensus in the scientific community that TMD treatment is mainly based on symptoms management rather than causal factors interception and elimination, due to the complex multifactorial etiopathogenesis which makes the establishment of a causal therapy difficult (18). The adoption of conservative treatment modalities is based on the assumption that non-reversible and invasive therapies are not indicated to treat symptoms in the absence of a well-identified pathogenetic pathway. The absence of a recognized causal therapy has led to the proposal of several treatment modalities for symptoms management, among which occlusal splints (19,20), physiotherapy

(21), behavioral and physical treatments (22), drugs (23-26), while surgery seems to be reserved to a minority of patients (27-33).

## Iatrogenic lesions

Literature supporting the hypothesis that TMD symptoms occur after iatrogenic interventions is scarce, and the possibility of such an occurrence is infrequent, due to the large adaptation skills of the stomatognathic system, which allow achieving good therapeutic outcomes or maintaining a good balance with a simple high-prudence approach to TMD management or to complex rehabilitation treatments (34).

Nonetheless, extreme cases of under- or over-treatment may lead to iatrogenic lesions.

Examples of the former are cases of severe temporomandibular joint arthrosis that, if left untreated, may evolve to ankylosis and subsequent need for complex TMJ surgeries.

Cases of overtreatment are unfortunately more frequent, and regard mainly the adoption of surgical techniques that were not indicated for the specific disorder or symptom referred by the patient, as in the case of TMJ surgeries for disk repositioning performed to solve a non-pathological joint click. Such interventions may hesitate in joint ankylosis, thus requesting drastic definitive interventions, such as total temporomandibular joint replacement (35,36).

## Traumatic lesions

Traumatic lesions to the temporomandibular joint may be the consequence of direct (i.e.: condylar fracture following a violent chin trauma) or indirect (temporomandibular joint effusion following a car accident cervical whiplash) trauma.

The effects of direct trauma on the temporomandibular joint are well-documented in the literature, and depend upon the intensity, direction and area of the impact, ranging from mild contusions to severe and rarely described cases of condyle penetration into the middle cranial fossa (37, 38). Also, cases of post-traumatic ankylosis have been described in the literature, and surgical corrections are consequently needed (39).

Indirect traumas are often called into cause in claims for TMD damage. Some studies suggested the co-occurrence of a mandibular whiplash with a car-accident cervical whiplash, on the basis of the hypothesis that the extreme hypertranslation of the condyle out of the glenoid fossa might lengthen or

even stretch the posterior attachment and the ligaments, both at the medial and lateral levels, thus predisposing to disk displacement and post-traumatic joint tenderness and effusion (40). Nonetheless, the existence of the so-called temporomandibular joint whiplash is still much debated (41).

## Conclusions

A deep knowledge of the complex mechanisms that may lead to TMJ disorders has a basic importance for the interpretation of clinical findings at a patient level. Indeed, while direct trauma to the temporomandibular joint provoked easily objectivable injuries, the same is not true for cases of indirect trauma or iatrogenic events. In those cases, a medical legal assessment has to take into account for the current of care among diagnostic procedures (i.e. standardized clinical assessment, imaging techniques, no electronic devices) and rehabilitation protocols in both TMD and non-TMD subjects (i.e. high-prudence, low-technology treatment plans).

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**Resumo:** Avaliação das lesões traumáticas e iatrogênicas da articulação temporomaxilar

As lesões traumáticas e iatrogênicas da articulação temporomaxilar são pouco comuns. No entanto, a avaliação médico-legal destas situações é uma tarefa complexa que deve ter em conta os elevados níveis de evidência apresentados na literatura que respeita a estas perturbações temporomaxilares e dentárias.

As perturbações da articulação temporomaxilar têm uma etiopatogenia multifactorial que deve ser diagnosticada de acordo com as classificações estandardizadas de referência. Esta metodologia pode ser útil para os casos mais complexos, como os das perturbações das

articulação temporo-maxilar que possam surgir na sequência de situações de iatrogenia ou de traumatismo indirecto.

**Palavras-chave:** Lesões iatrogénicas; lesões traumáticas; lesões da articulação temporo-maxilar.

**Summary:** Temporomandibular joint injury assessment: traumatic and iatrogenic lesion

Iatrogenic or traumatic lesions to the temporomandibular joint are an uncommon finding. Nonetheless, a medical legal appraisal in those situations is a complex task that has to take into account for the current best level of evidence in the TMD/dental literature.

Disorders of the temporomandibular joint have a complex multifactorial etiopathogenesis and must be diagnosed according to referenced standardized classifications. Such an approach may be helpful in the evaluation of the most complex medical legal cases, as in the case of temporomandibular disorders symptoms supposedly occurring after iatrogenic events or indirect trauma.

**Key-words:** Iatrogenic lesions; traumatic lesions; temporomandibular joint injury

**Résumé:** Évaluation des lésions traumatiques et iatrogéniques de l'articulation temporomaxillaire

Les lésions iatrogéniques et traumatiques de l'articulation temporomaxillaire sont peu communes. Cependant, l'évaluation médico-légale de ces situations est une tâche complexe qui doit tenir compte des niveaux d'évidence les plus élevés dans la littérature concernant ces perturbations temporomaxillaires et dentaires.

Les perturbations de l'articulation temporomaxillaire a une étiopathogénèse multifactorielle et doit être diagnostiquée selon les classifications standardisées de référence. Cette méthodologie peut être utile à l'évaluation des cas les plus complexes, comme ceux des perturbations de l'articulation temporomaxillaire qui se produiraient après des situations de iatrogénie ou de traumatisme indirect.

**Mots-clés:** Lésions iatrogéniques; lésions traumatiques; lésions de l'articulation temporomaxillaire.

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