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REVIEW ARTICLE

Diagnosis of temporomandibular joint disorders: indication of imaging exams☆

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Diagnostic imaging;
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Magnetic resonance imaging;
X-ray computed tomography;
Radiography

Abstract
Introduction: Knowledge of the different imaging tests and their appropriate indications is crucial to establish the diagnosis of temporomandibular disorders, especially in patients with overlapping signs and symptoms.
Objective: To present and assess the main diagnostic imaging tests for temporomandibular disorders and rationally discuss their indication criteria, advantages, and disadvantages.
Methods: Literature review in the Web of Knowledge, PubMed and SciELO databases, as well as manual search for relevant publications in reference lists of the selected articles.
Results: Computed tomography and magnetic resonance imaging were considered the gold standard assessments for the temporomandibular joint to evaluate hard and soft tissues, respectively. Each diagnostic method exhibited distinct sensitivity and specificity for the different subtypes of joint dysfunction.

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Conclusion: Selecting an evaluation examination based on its accuracy, safety, and clinical relevance is a rational decision that can help lead to an accurate diagnosis and an optimum treatment plan.

PALAVRAS-CHAVE
Transtornos da articulação temporomandibular;
Diagnóstico por imagem;
Articulação temporomandibular;
Imagem por ressonância magnética;
Tomografia computadorizada por raios X;
Radiografia

Diagnóstico das disfunções da articulação temporomandibular: indicação dos exames por imagem

Resumo
Introdução: O conhecimento dos distintos exames de imagem e sua correta indicação é fundamental para elaboração do diagnóstico das disfunções temporomandibulares, principalmente em pacientes com grande sobreposição de sinais e sintomas.
Objetivo: Apresentar e avaliar os principais exames de diagnóstico por imagem das disfunções temporomandibulares, além de discutir racionalmente os seus critérios de indicação, vantagens e desvantagens.
Método: Revisão da literatura nas bases de dados Web of Knowledge, PubMed e SciELO, além de busca manual por publicações relevantes nas listas de referências dos artigos selecionados.
Resultado: Os exames de tomografia computadorizada e ressonância magnética foram considerados ''padrão-ouro'' para a avaliação dos tecidos duros e moles, respectivamente, da articulação temporomandibular. Cada método de diagnóstico pesquisado apresentou sensibilidade e especificidade distintas para os diferentes subtipos de disfunção da articulação.
Conclusão: Considera-se como racional a indicação fundamentada na acurácia, segurança e relevância clínica do exame a ser solicitado, o que implica na adequada determinação do diagnóstico e do plano de tratamento.

Introduction

The temporomandibular joint (TMJ) is a composite ginglymus-arthrodial joint, whose components are the condyle, glenoid cavity and articular tubercle, articular disc, retrodiscal tissue, synovial membrane, and joint capsule.[1] It is the most frequently used joint of the human body and has simultaneous bilateral capacity to move the mandible.[2,3]

Its components often undergo remodeling and adaptation processes. In the presence of temporomandibular disorders (TMD), structural alterations and functional disorders are commonly observed.[2,3]

In most cases, symptoms are diffuse and imprecisely manifested as masticatory myalgia, arthralgia, headache, otalgia, and neck pain, among others.[4–8] Pain in more than one area is common and often leads patients to seek evaluation from various medical and dental specialists, including otorhinolaryngologists.[6,8]

For instructional purposes, the American Academy of Orofacial Pain (AAOP) has classified TMD into two major groups: muscle and joint pain.[9] It is estimated that temporomandibular joint disorders (TMJD) affect approximately 30% of the population in asymptomatic form, as internal joint derangement, comprising disc dislocation and structural changes resulting from osteoarthritis and osteoarthrosis.[2,10,11] The diagnostic subtypes TMJD can be seen in Table 1.

The etiology of TMJD is not fully understood[6,8,12] and is related to the presence of risk factors such as trauma, parafunctional habits, postural condition, occlusal microtrauma, systemic predisposition, sleep disorders, and deleterious psychosocial alterations.[6–8,11,13]

The diagnosis of TMJD is achieved by evaluating the medical history and by physical examination.[6,8,14] However, diagnostic TMJ imaging methods are used to assess the integrity of its components and their functional association, to confirm the extent or progression of an existing disease, and to assess and document the effects of an already established treatment.[9,15] They are essential for assessment in cases of trauma, occlusal alterations and sudden limitation of mouth opening, presence of joint noises, systemic joint diseases, infection and failure of conservative treatments.[13]

Objectives

This study discusses the main imaging techniques for the assessment of TMJ and adjacent structures and their indications for the diagnosis of joint alterations, rationally evaluating their advantages and disadvantages.

Method

Using the ISI Web of Knowledge, PubMed, and SciELO databases, a search was carried out for literature articles published and made available in the years 2004–2014,