

# Temporomandibular Disorders and Headaches

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## KEYWORDS

• Temporomandibular disorder • Migraine • Tension-type headache • Bruxism

## KEY POINTS

- Temporomandibular disorders (TMDs) and headache are common and may be reported as single or separate entities.
- There is no single cause for TMDs.
- Patients with asymptomatic clicking, often do not require treatment.
- Therapy is indicated if pain, significant limitation in mandibular range of motion, or both are present.
- The pain associated with TMD is frequently of muscular origin.
- Imaging alone should not dictate treatment.
- The symptoms of TMD are often self-limiting.

## INTRODUCTION

Temporomandibular disorders (TMDs) are a major cause of nondental pain in the orofacial region, and may cause headache.<sup>1</sup> The International Classification of Headache Disorders, 3rd edition (ICHD-3) recognizes headache attributed to TMDs<sup>2</sup> but, because headache and TMD are prevalent, have multifactorial origins, and have similar or overlapping symptoms, diagnosis is often confused. It is often difficult to differentiate these disorders when they coexist.<sup>3</sup> Overlap may also result from shared environmental and genetic factors involving abnormal pain processing and trigeminal sensitization. The trigeminal nerve is the final conduit of face, neck, and head pain,<sup>4</sup> which may be generated by musculoskeletal, vascular, or neural structures. Once pain is established, referral anywhere in the trigeminal and cervical complex can occur through central sensitization. Management of TMD may reduce nociception, ameliorate sensitization, and reduce primary headache. However, this does not mean there

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is a direct cause-and-effect relationship between TMD and primary headache; they can coexist and relate to each other through common neural circuits. Understanding the relationship between TMD and primary headache, as well as headache secondary to TMD, is important. Management is best achieved by addressing each individually and realizing that one can perpetuate the other.

## TEMPOROMANDIBULAR DISORDERS

TMDs include musculoskeletal and neuromuscular conditions that involve the temporomandibular joints (TMJs), the masticatory muscles, and all associated tissues.<sup>5</sup> Common painful TMDs are generated from myogenous and/or arthrogenous components. A painful TMD may occur in 10% of the population and other signs and symptoms of TMD (eg, clicking, limited range of motion, pain on function) have been reported in 46.1% of the United States population.<sup>6,7</sup> Studies of nonpatient populations have found that up to 75% of people studied have at least one sign of joint dysfunction and nearly one-third of the population has at least one TMD symptom.<sup>8</sup> These data may be affected by differences in diagnostic criteria and data collection methods in the cross-sectional epidemiologic studies on the prevalence of TMDs. In 1992, the Research Criteria for TMD (RDC/TMD) introduced the use of standardized diagnostic criteria to improve consistency among studies. The RDC/TMD has provided researchers with a standardized process for examining, diagnosing, and classifying patients with TMD for the most common TMD subtypes.<sup>9</sup> A systematic review including only those studies using RDC/TMD reported prevalences up to 12.9% for masticatory muscle pain, 15.8% for disc derangements, and 8.9% for inflammatory-degenerative or painful TMJ disorders.<sup>10</sup> Less than 7% of individuals with TMDs need therapeutic intervention,<sup>11</sup> and an even smaller percentage complain of headache.

Headache and TMD are common and may therefore be reported as a single or as separate entities. The TMJ, masticatory muscles, and associated orofacial structures may act as triggering or perpetuating factors for primary headache. A primary headache disorder may similarly trigger or perpetuate pain in the masticatory muscles or TMJ. Ciancaglini and Radaelli<sup>3</sup> reported that headache occurs significantly more frequently in patients with TMD symptoms (27.4% vs 15.2%). Individuals with myogenous TMDs are more likely than those with arthrogenous TMDs to have headache, and the prevalence of TMD in patients with migraine and tension-type headache is higher than in a nonheadache population.<sup>12</sup> According to Glaros and colleagues,<sup>13</sup> individuals with chronic headache were more likely than nonheadache controls to meet criteria for an RDC/TMD diagnosis of myofascial pain. The potential for headache secondary to TMDs is recognized in the ICHD-3 with diagnostic criteria for 11.7 Headache attributed to temporomandibular disorder (TMD) (**Box 1**). Jaw movement or pressure applied to the TMJ or surrounding musculature frequently exacerbates the secondary headache. The described pain typically manifests ipsilaterally when the TMJ is the pain generator, but may be bilateral with muscular involvement.<sup>2</sup> Peripheral and central mechanisms are likely involved in myogenous TMDs.<sup>14</sup> Painful TMDs may increase central sensitization, inducing, exacerbating, or contributing to the chronification of headache. Regardless of whether or not evidence of causation can be shown, ignoring TMDs as peripheral triggers of headache often results in a poor clinical outcome.

## CAUSES OF TMD

There are many factors associated with TMDs but no universal cause has been identified. There is no single cause for all TMDs. Inflammation of the TMJs' synovial lining or capsule may account for joint pain, and may be associated with an incoordination of

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