

# First Diagnosis of Rheumatoid Arthritis in a Patient with Temporomandibular Disorder: A Case Report

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Rheumatoid arthritis (RA) is a chronic disease of unknown etiology, characterized by synovitis of the diarthroidal joints, gradual bone erosion, and cartilage destruction. Temporomandibular joint (TMJ) arthritis is frequent in patients with RA, but it is seldom the first joint to be affected. This report presents a case of a female patient with undiagnosed RA who first presented with signs and symptoms of the disease in the TMJs. It highlights the importance of professional awareness and provides a roadmap for clinical and radiologic examination followed by biochemical and genetic monitoring for early diagnosis of RA. *Int J Prosthodont* 2015;28:124–126. doi: 10.11607/ijp.4182

**R**heumatoid arthritis (RA) is a systematic autoimmune disease characterized by inflammation of the synovial membrane of the diarthroidal joints, gradual bone erosion, and cartilage destruction. RA affects women—mainly between the ages of 35 and 45 years—and predominantly the small joints. The incidence of temporomandibular joint (TMJ) involvement ranges from 5% to 86%; however, the TMJ is seldom the first joint to be affected.<sup>1</sup>

In this report, the early diagnosis of RA in a patient presenting with signs and symptoms of temporomandibular disorder (TMD) without any other articular involvement is analyzed, and a clinical protocol for the diagnosis and management is proposed.

## Clinical Report

A 25-year-old female patient was referred to the postgraduate prosthodontic clinic due to acute symptomatology of both TMJs. The Research Diagnostic Criteria for Temporomandibular Disorders (RDC/TMD) were applied. She reported muscle pain and tenderness, headaches, difficulty in jaw movements, and an open bite, which gradually developed in the last couple of months. Clinical examination showed restricted mandibular movements accompanied by pain, especially during maximum jaw opening (28 mm), protrusion (4 mm), and right lateral movement (4 mm). Moreover, tenderness on palpation of several muscles and both TMJs, as well as open bite (2 mm), were also recorded (Fig 1). Based on the RDC/TMD criteria, the patient was classified in the IIIb category (osteoarthritis), which led to the decision for further clinical/laboratory investigation.

At the first appointment, nonsteroidal anti-inflammatory drugs (ibuprofen 600 mg, two times per day) were prescribed and a soft diet was recommended to relieve acute symptoms. The patient was referred for radiologic screening of the TMJs, starting with an orthopantomograph and followed by magnetic resonance imaging (MRI) of the TMJs. The MRI revealed bilateral erosion of the heads of the condylar processes, presence of osteophytes on the left condyle, severe destruction of the left articular disc, and bilateral joint effusion, a typical sign of active joint inflammation (Figs 2 and 3).

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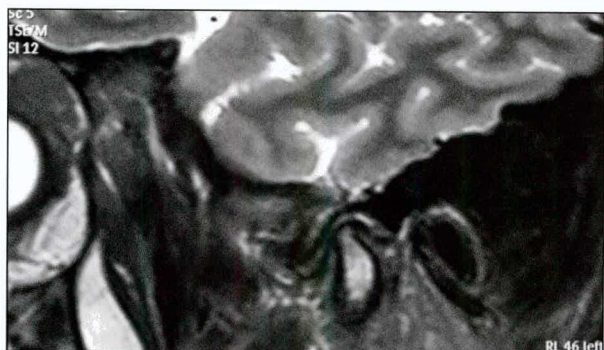




**Fig 1** Maximum intercuspation with open bite.



**Fig 2** Corrosion of the head of the right condyle, right joint effusion.



**Fig 3** Joint effusion and existence of osteophyte on the left condyle.



**Fig 4** Occlusal stabilization appliance.

Subsequently, the patient was referred for complete immunologic (several factors related to autoimmune diseases) and molecular (human leukocyte antigen [HLA]) screening. Rheumatoid factor and antinuclear antibody (ANA) were negative, while the patient carried the following haplotypes of HLA class I: A\*02, A\*31, CW\*04, CW\*07, B\*07, and B\*53.

Further clinical and radiographic screening by a rheumatologist revealed monoarthritides of the right elbow with joint effusion and restriction on the stretch of the right forearm, enthesites, and coronoidites, which confirmed the initial suspicion of RA based on the TMJ findings.

The patient received systematic medicinal treatment by the rheumatologist, including leflunomide (Arava 20 mg per day) and diacetylrheine (Verbovil 50 mg, two times per day). Furthermore, a maxillary hard acrylic resin occlusal stabilization splint was constructed to decrease TMJ loading and affect muscle function (Fig 4). Finally, the patient was instructed in kinesiotherapy for improving mandibular and joint mobility.

Six months after initiation of the medical and dental treatment, the patient reported elimination of headaches and improvement of function.

## Discussion

In the reported case, the TMJ was the first joint affected by RA, which led to the diagnosis of the disease.

It has been reported that RA patients present at least one sign or symptom in the TMJs, including pain or sensitivity during joint movement, tenderness on palpation of joints and muscles, restricted joint mobility, TMJ crepitation, edema, and occlusal disharmony.<sup>2</sup> Particularly, open bite is a rather characteristic sign.<sup>1</sup> The patient in this case presented with a majority of these signs and symptoms, including a progressively advancing open bite.

Typical TMJ radiographic signs of RA are not usually visible with conventional radiographic techniques. MRI is used as the gold standard for TMD diagnosis, because it can depict both soft and bony tissues.<sup>3</sup> In this case, MRI constituted an important tool, by revealing almost all typical RA signs in the TMJs, such as condyle erosion, osteophytes, destruction of the articular disc, and joint effusion.

HLA's association with RA is well documented. The molecular screening of the patient in this case study indicated that she carried the A\*02, A\*31, CW\*04, CW\*07, B\*07, and B\*53 haplotypes, but she was negative for



HLA-B27, the latter being strongly associated with ankylosing spondylitis. Using a microsatellite typing approach, Barnetche et al<sup>4</sup> showed the positive association between HLA-A\*02 and RA. Schiff et al<sup>5</sup> found in RA patients that Aw31 was highly associated with RA; however, Aw31 was negatively associated with rheumatoid factor, as was the case with the patient in this case study.

### Conclusions

Although the TMJ is seldom the first joint affected by RA, this case showed how TMJ signs and symptoms may lead to its early diagnosis. In this respect, dentists' awareness may play a critical role in the early diagnosis and management of TMJ arthritis.

### Acknowledgments

The authors reported no conflicts of interest related to this study.

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### Literature Abstract

#### Estimating and explaining the effect of education and income on head and neck cancer risk: INHANCE consortium pooled analysis of 31 case-control studies from 27 countries

This study investigated the risk for head and neck cancer associated with lower socioeconomic status (low educational attainment and household income) and examined these associations by age, sex, cancer subsite, and geographic location. A total of 23,964 cases with head and neck cancer and 31,954 controls from 31 studies in 27 countries were selected from the International Head and Neck Cancer (INHANCE) pooled database. Study-specific odds ratios (OR) and 95% confidence intervals (CI) for the association of education and income were assessed using unconditional logistic regression. Summary effect estimates, subgroup analyses, sensitivity analysis, and the socioeconomic effect after adjusting for behavioral risk factors also were examined. Low education was found to be associated with an increased risk for head and neck cancer (OR = 2.50, 95% CI: 2.02 to 3.09). Approximately one-third of this increased risk was not explained by cigarette smoking and alcohol after adjusting for lifestyle behaviors. This risk remained high even among those who never smoked or drank alcohol (OR 1.61, 95% CI: 1.13 to 2.31). Low household income also was associated with a similar increased risk of head and neck cancer (OR 2.44, 95% CI: 1.62 to 3.67), and 39% of this risk was not explained after adjusting for smoking and alcohol. Risk for cancer associated with low socioeconomic status unexplained by smoking and alcohol were found to be higher in women than in men, in the oropharynx than in other sites, in South/Central America than in Europe/North America, and was highest in countries with greater income inequality. The authors concluded that socioeconomic status is a strong risk factor for head and neck cancer. The lowest education and income levels were associated with more than a twofold increased risk of cancer, which is not explained by behavioral risk factors, and varies across cancer site, age, sex, and region. The recognition of these socioeconomic factors may help the development of better preventive approaches for head and neck cancer.

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