Temporomandibular Joint Manifestations in Rheumatoid Arthritis: A Case Report

Peeyush Shivhare¹, Lata Shankarnarayan², Ankur Singh¹, Naqoosh Haidry³
¹Senior Lecturer, Department of Oral Medicine & Radiology, Narsinhbhai Patel Dental College & Hospital, Visnagar, Gujarat, India, ²Professor, Department of Oral Medicine & Radiology, Rama Dental College, Kanpur, Uttar Pradesh, India, ³Senior Lecturer, Department of Oral & Maxillofacial Surgery, Narsinhbhai Patel Dental College & Hospital, Visnagar, Gujarat, India

Rheumatoid arthritis (RA) is a chronic inflammatory disease characterized by joint swelling, joint tenderness, and ravagement of synovial joints, leading to rigorous incapacitation, and premature mortality. It was first described by Dr. Augustin Jacob Landr´e-Beauvais in 1800. RA affects about 1% population worldwide. Temporomandibular joint (TMJ) involvement is usually found along with the involvement of the joints of the hands and feet. TMJ involvement is associated with pain, inflammation, limited joint movements, swelling, joint stiffness, and muscle spasm. Radiological features include cortical erosion, decreased joint space, de-ossification, sharpen pencil head or spiked deformity or mouthpiece of flute deformity of the condylar head. Clinical examination and investigations (radiographic and hematological) remain the mainstay of diagnosis. Here, we present a case of RA of TMJ along the joints of the hands and feet.

Keywords: Arthritis, C-reactive protein, Rheumatoid arthritis, Temporomandibular joint

INTRODUCTION

Arthritis is any inflammatory condition of the joint. Rheumatoid arthritis (RA) is “a chronic inflammatory disease characterized by joint swelling, joint tenderness, and ravagement of synovial joints, leading to rigorous incapacitation, and premature mortality.” RA was first described by Dr. Augustin Jacob Landr´e-Beauvais in 1800. Earlier it was known as “arthritis deformans” and “rheumatic gout,” A B Garrod in 1858 coined the term RA. Following are the characteristic features of RA: Chronic inflammation of the synovium leading to the eradication of articular cartilage and juxta-articular bone. Systemic diseases often associated with RA include anemia, fatigue, and osteoporosis. More than a moiety of RA patients additionally have temporomandibular joint (TMJ) complaints, which is customarily the last joint to be affected. American college of Rheumatology gave seven criteria for the diagnosis of RA in 1987: Morning stiffness, arthritis of three or more joints, arthritis of hand joints (≥1 swollen joints), symmetrical arthritis, rheumatoid nodules, serum rheumatoid factor (RF), radiographic changes (erosion). Four of the above seven criteria must be present. Criteria 1-4 must have been present for at least 6 weeks. Here, we present a case of RA affecting the TMJ, with involution of joints of hands and legs, and positive hematological investigations for RA.

CASE REPORT

A female patient aged around 39 years had reported to our department with a chief complaint of deposits around her teeth and wanted to get them cleaned. Past dental history, past medical and family history was non-contributory. On general physical examination, subcutaneous nodules were present in the wrist of the right and left hands, in the toes and their joints with stiffness (Figure 1). Vital sign was in mundane limits. On extra oral examination, facial asymmetry was visually perceived on the right side of the face due to preauricular melancholy present on the same side (Figures 2 and 3). On TMJ examination, deviation of mandible toward the left side was present. Intraoral caries with pulp involuntio ir 24, 26, 35, 36, 46, 47 and Ellis Class I fracture ir 21 were present. Predicated on the clinical examination, provisional diagnosis of chronic generalized marginal gingivitis, RA involving right TMJ, and chronic irreversible pulpitis ir 24, 26, 35, 36, 46, 47. Hematological tests showed RF - positive, C-reactive protein (CRP) - positive, antistreptolysin O titer-negative,

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Corresponding Author:
Dr. Peeyush Shivhare, Senior Lecturer, Department of Oral Medicine & Radiology, Narsinhbhai Patel Dental College & Hospital, Visnagar, Gujarat, India. Phone: +91-7575677246. E-mail: drshivharepeeyush3@gmail.com

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anti-nuclear antibodies: Negative, hemoglobin, erythrocyte count, total leucocytes and differential leucocytes, platelet count and packed cell volume were within mundane limits. The erythrocyte sedimentation rate (ESR) value was high with 54 mm at the cessation of 1-h. Alkaline phosphatase, serum calcium, and serum phosphorus were withal within mundane limits.

On radiological investigation, panoramic radiograph and TMJ tomogram showed erosions of right condyle (Figure 4). Cone beam computed tomography corroborated the findings of conventional radiographs and showed pencil shaped condyle on the right side (Figures 5-7a and b). Left condyle was mundane. Hand wrist and other joint radiographs showed fusion of the joints (Figure 8a and b). Predicated clinical and radiological examination RA

Figure 1: Hand wrist showed stiff joints with subcutaneous nodules

Figure 2: Patient’s front profile

Figure 3: Lateral profile of patient showed preauricular depression on the right side

Figure 4: Panoramic radiograph showed erosion of right condyle

Figure 5: Axial section of CBCT showing erosions of right condyle

Figure 6: Coronal section of CBCT showing pencil shaped right condyle
affecting the right TMJ was given. The patient was referred for oral prophylaxis, recuperation of teeth and to medico for further evaluation.

**DISCUSSION**

RA affects about 1% population worldwide. It affects women 3-5 times more often than men. TMJ involution is associated with pain, inflammation, limited joint movements, swelling, joint stiffness, and muscle spasm. Diagnosis of RA is made by history, clinical findings, radiographic, and laboratory investigations.

In early age, RA may result in growth disturbances of jaw, facial deformity, and ankylosis. In adults, findings may range from mild joint stiffness to total joint disruption, and deformed occlusion and face. In the present case, the patient had about 39 years of age, which is similar to that reported by Gynther and Tronje; 80% of patients with RA develop signs and symptoms of disease between 35 and 45 years of age. In our case, TMJ involvement was found along with changes in the joints of the hands and feet, similar to that reported by Sodhi et al.; TMJ involvement is conventionally found along with damage to the joints of the hands and feet.

In the present case, radiological investigations revealed condylar erosion and deformation to make it appear like “pencil shape,” which is similar to that reported by Ardic et al.; radiological features of TMJ include cortical erosion, decreased joint space, de-ossification, sharpen pencil head or spiked deformity or mouthpiece of flute deformity of condylar head, and subcortical cysts. Erosion in panoramic tomogram has been found to be associated with restricted condylar movement. These may also show acute or early changes, whereas flattening and osteophytes may show late changes in the joint. Due to progressive destruction and changes in the anterior margin of the condyle, it resembles the sharpened pencil deformity. Erosion occurring only on the anterior aspect of the condyle makes it to resemble “the mouthpiece of the flute.”

In the present case, on hematological investigations RF and CRP are positive, and ESR was elevated, similar to that reported by Sodhi et al.; hematological changes in RA include RF and Antinuclear antibody and raised ESR values. Other confirmatory tests for RA include citrulline antibody and CRP test are recommended in doubtful cases.

Treatment of RA is multidisciplinary and non-curative. The goal is to support the function and prevent damage to the joint and organ. Pharmacotherapeutics used includes two classes of drugs: Fast acting (first line) and slow acting (second line or anti-rheumatic drugs). First line drugs include aspirin and cortisone. Second line drugs include methotrexate and hydroxychloroquine. Newer second line drugs include leflunomide, etanercept, infliximab, rituximab, and abatacept. Physiotherapy is effective in short-term for managing restricted mouth opening. Local anesthetic into the joint, arthroscopy and open surgery are the other treatment modalities.

**CONCLUSION**

This case presented with typical features of RA involving the TMJ. History, clinical features, radiographic findings, and hematological investigations played a vital role in diagnosis. Hence, we conclude that a punctilious and exhaustive history, clinical examination, and investigations specially radiographs should be performed in all the cases presenting with deviation in Mandibular movement and involution of other joints of the body so as to detect any joint disorder like RA at an early stage. The present case is unique, as the diagnosis of RA was made by an oral physician, hence re-establishing the importance of dentists to the society.

**REFERENCES**


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