

## **Temporomandibular joint in Systemic onset juvenile idiopathic arthritis: A Case report.**

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**Abstract:** Juvenile Idiopathic Arthritis (JIA) is a chronic inflammatory disease that has been described with various names in literature including juvenile rheumatoid arthritis, juvenile chronic arthritis, and Still's disease and arthrosis deformans juveniles. JIA most commonly involves major joints such as the knees, ankles, and elbows but smaller joints (such as the fingers and toes) may also be affected. Involvement of TMJ in JIA is of particular interest in field of dentistry in terms of diagnosis as well as management.

**Keywords:** Juvenile Idiopathic Arthritis, Temporomandibular joints, CBCT, Disease modifying Anti rheumatic Drugs.

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### **INTRODUCTION**

Here we present a case report of Juvenile idiopathic arthritis involving TMJ in a 13 year old boy. We have also described General and Intra oral clinical findings as well as radiological Findings involving Condyles and Mandibular fossa.

### **CASE REPORT:**

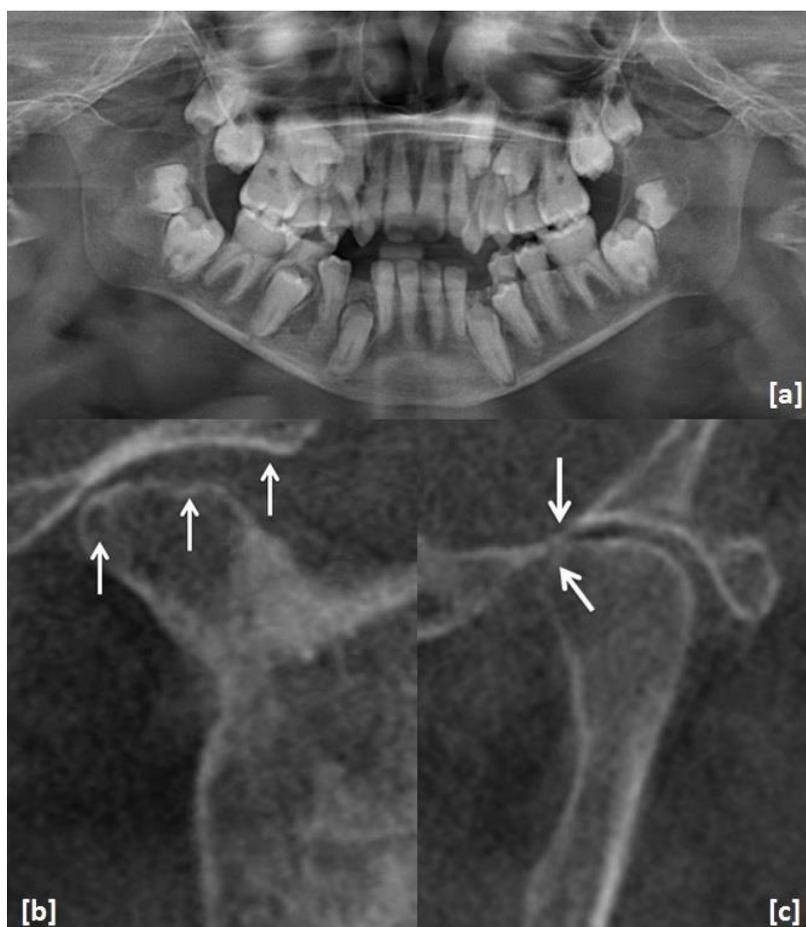
A 13-year-old boy reported with complaints of pain at preauricular regions while opening mouth, stiffness of jaws and difficulty in chewing since past 6 months. Patient was a known case of Systemic Onset Juvenile idiopathic Arthritis (SOJIA), and had been under corticosteroid treatment for past 6 years, and Disease modifying anti-rheumatic drugs (DMARDs) was initiated since past 1 year. Patient had developed Cushingoid habitus including Moon face, Pot belly [Figure 1a], Buffalo hump and Hirsutism. Patient also had a pathological fracture of right femur before 6 months. Patient was sero-negative for Rheumatoid factor (RF) and Anti-Citrullinated peptide (anti-ccp) antibodies.

On Extra oral examination Patient had retrognathia and mouth opening was restricted to 27mm. On palpation bilaterally Temporo mandibular joints (TMJ) were tender with appreciable clicking. Intraoral

examination revealed malocclusion in form of anterior open bite, Hypoplastic defects of enamel of all teeth along with Retained deciduous teeth [Figure 1b]. Panoramic radiograph showed generalized decreased density of bone. It revealed altered Condylar morphology, with evidence of bilaterally hypoplastic condyles, flattening of Condylar heads and articular eminences, decreased Ramal height and retained deciduous molars [Figure 2a]. For detailed analysis of the changes found in radiograph, Cone-Beam Computed Tomography (CBCT) analysis was done in Coronal, Sagittal, Axial and Three-dimensional reconstructed view with Carestream CS 9300. These images confirmed panoramic radiograph findings of altered Condylar and TMJ morphology. Sagittal section of Right TMJ revealed supero-posterior positioning of condyle, evidence of subcortical cyst formation, cortical erosion on Condylar head along with flattening of articular eminence [Figure 2b]. Coronal section of Left TMJ revealed an altered Condylar morphology, almost diminished interarticular space and flattening of supero-medial surface of condyle [Figure 2c]. Three dimensional reconstruction of mandible revealed decreased density of mandibular bone suggestive of Osteoporotic condition of patient. All these findings were consistent with TMJ involvement in SOJIA.



**Fig 1[a]: Patient showing Cushingoid habitus featuring Moon face and obesity of the trunk (Pot belly)**  
**Fig 1[b]: Intraoral Picture showing anterior open bite, Hypoplastic enamel and Retained deciduous teeth.**



**Fig 2 [a]: Panoramic radiograph showing generalized decreased density, bilateral Condylar hypoplasia, flattened Condylar heads and articular eminences, decreased Ramal height and retained deciduous molars**  
**Fig 2 [b]: Sagittal section of Right TMJ featuring supero-posterior positioning of condyle, evidence of subcortical cyst formation, cortical erosion on Condylar head along with flattening of articular eminence**  
**Fig 2 [c]: Coronal section of Left TMJ showing an altered Condylar morphology, almost diminished interarticular space and flattening of Supero medial surface of Condylar head.**

## DISCUSSION:

Juvenile Idiopathic Arthritis (JIA) is a chronic inflammatory disease that has been described with various names in literature including juvenile rheumatoid arthritis, juvenile chronic arthritis, and Still's disease and arthrosis deformans juvenilis. Arthritis in children, also involving TMJ was first reported by Still in 1897 [1]. JIA has been described as onset before 16 years of age with involvement of at least one joint that has been persistently inflamed for minimum 6 weeks. In the International League of Associations for Rheumatology (ILAR) classification system, the term JIA has replaced both juvenile chronic arthritis and juvenile rheumatoid arthritis. JIA is divided into seven subgroups namely Systemic juvenile idiopathic arthritis, Oligoarticular juvenile idiopathic arthritis (Oligoarthritis), Rheumatoid factor positive polyarticular juvenile idiopathic arthritis (Polyarthritis, rheumatoid factor positive) Rheumatoid factor negative polyarticular juvenile idiopathic arthritis (Polyarthritis, rheumatoid factor negative) Psoriatic juvenile idiopathic arthritis, Enthesitis-related juvenile idiopathic and undifferentiated arthritis[2]. TMJ involvement in JIA has been reported to be 17-88% [3]. Signs and symptoms of the condition include TMJ Pain, clicking sound and restricted mouth opening, however in some patient's signs and symptoms might be absent [4]. Comprehensive analysis of osseous changes of TMJ can be done through CBCT that may show hypoplasia, flattening, subcortical sclerosis, subcortical cyst, surface erosion, osteophyte, generalized sclerosis, loose joint body, deviation in form, and bony ankylosis of condyle. Condyle position within the fossa may show decreased joint space [5].

JIA causes intermittent episodes of pain and treatment is targeted towards pain control. Pharmacologic management with nonsteroidal anti-inflammatory drugs (NSAIDs), disease-modifying antirheumatic drugs (DMARDs), biologic agents, and intra-articular and oral steroids are main stays of treatment. The Biological agents target key cytokines and other inflammatory mediators like tumor necrosis factor (TNF), interleukin (IL)-1 and 6. They are co-administered with DMARDs [6].

## CONCLUSION:

Involvement of TMJ in JIA requires Interdisciplinary approach in Diagnosis as well as treatment of symptoms. Early Diagnosis and initiation of management prevents suffering from symptoms and progression of disease to certain extent. JIA affects the life quality of patient in psychologically susceptible age group. It is important to provide medical support to patient and psychological counselling to patients as well as parents.

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