

Temporomandibular joint involvement in juvenile rheumatoid arthritis: report of two cases

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Abstract

Juvenile rheumatoid arthritis is a systemic disease which manifests itself primarily in the joints, including the TMJ. Two cases are reported which demonstrate radiographic condylar changes in the absence of clinical signs and symptoms.

Introduction

Juvenile rheumatoid arthritis (JRA) is a disease of varying clinical manifestations with almost all patients sharing the finding of arthritis. Up to 150,000 children in the United States are affected by JRA.

JRA is subdivided into three major subgroups: systemic-onset, polyarticular, and pauciarticular.¹ The systemic-onset type occurs in 20 percent of JRA cases and is characterized by high intermittent fevers and rheumatoid rash often associated with splenomegaly and lymphadenopathy. Polyarthrititis may be seen within the first six months of the disease. Polyarticular JRA is not associated with prominent systemic disease though it may follow it. It involves multiple joints, with the small hand joints characteristically affected. The involvement is usually symmetrical. About 30 percent of children with JRA have the polyarticular types. Pauciarticular JRA involves four or fewer large joints generally in an asymmetrical pattern.² About 50 percent of JRA-affected children have this type.

There is little in the literature on the dental status of children with JRA. Storhaug,³ in a study of 40 males and 52 females with a mean age of 12 years, found a high incidence of caries and very poor oral hygiene. This she related to the fact that upper limb

involvement made oral hygiene care more difficult. Holt⁴ found that the dental health of JRA children in Manchester, England, did not appear to be different from the population at large. He did note problems of malocclusion and crowded dentitions which he related to JRA effects on the temporomandibular joint. Other studies by Engle and Brodie,⁵ Bache,⁶ Barriga et al.,⁷ and Slusar⁸ have noted problems of malocclusion and mandibular growth⁹ which were related to temporomandibular joint involvement. The reported incidence of TMJ involvement in JRA ranges from 20 percent to 65 percent¹⁰ and appears to be associated primarily with the systemic onset and polyarticular types. Ronning et al.¹¹ found that condylar involvement was frequently asymmetrical and demonstrated a 3:1 predilection for females. A significant finding was that only 36 percent of the patients with affected mandibular condyles displayed clinical symptoms.

The two cases to be described here demonstrate TMJ involvement in JRA without symptoms.

Case 1

M.B., a well-nourished, well-developed eight-year-old white female presented to our clinic for comprehensive dental examination as part of a larger screening of JRA patients. She was in no apparent distress.

The patient was diagnosed at age 18 months as having JRA when she began to complain of pain in her left leg, ankle, and both wrists. By age two, the affected joints were the right knee, elbow, and wrist. She was classified as having pauciarticular JRA. Aspirin therapy was begun initially. This was changed to tolemetin sodium^a at age two and later to fenoprofen calcium^b at age eight. The latter two drugs are propionic acid derivative nonsteroidal anti-inflammatory

^aTolactin (McNeil)

^bNalfon (Dista)

agents used to reduce joint swelling, pain, and morning stiffness. They do not alter the progressive course of the underlying disease. M.B. has been noted as being in remission at ages 4, 7, and 8 with intermittent symptomatic flare-ups.

On dental examination, the patient displayed a normally convex facial profile and bilateral Class I occlusion. A slight shift of the mandibular dental midline to the right was noted. No tenderness or crepitus of the TMJ was detected either by palpation or auscultation. The patient reported no history of TMJ morning stiffness and only a vague history of previous tenderness. The patient's ability to open her mouth was not limited.

Inspection of the joints from a panoramic radiograph (Ritter Panorol®) revealed moderate resorption of the anterosuperior surface of the right condylar head. The left condyle was essentially normal (Figures 1 and 2). This pattern of resorption is the pattern classically associated with JRA.¹

Case 2

J.K., a well-nourished, well-developed eight-year-old white male presented for dental examination as part of the same screening. He had been diagnosed as having systemic-onset JRA at age six when he began episodes of spiking fever (39.5°C), evanescent rash on chest and back, and arthritis of the right knee and elbow. The arthritis rapidly remitted. Aspirin was ineffective in reducing the fever which continued intermittently for the next year. At age seven, the arthritis involved both wrists, again only for a short period. Aspirin and tolmetin sodium were used in an attempt to reduce the persistent fever. After nine months of therapy with tolmetin, the morning fevers

and rash fully remitted. He was asymptomatic when he presented for examination.

The patient exhibited a Class I occlusion and convex profile normal for his age. No history of TMJ pain was elicited. Crepitus could not be detected, and the patient denied any symptoms of joint pain on palpation. Mandibular opening was not restricted. The panoramic radiograph, however, revealed resorption of the superior surface of the right condyle. The left condyle appeared normal (Figure 3 and 4).

Discussion

While TMJ problems in children have not received a great deal of study, it seems clear that functional problems are not uncommon in this age group. However, such problems have been largely limited to TMJ sounds and tenderness of musculature to palpation.¹² It is likely, then, that the TMJ resorptions found in these two cases are manifestations of JRA.

Several interesting features are present. Neither patient had a strong history of joint pain, morning stiffness, or masticatory difficulties. Both patients denied tenderness upon joint palpation. Limitations of opening and joint crepitus were absent. This is not unexpected, however. As mentioned earlier, Ronning, et al.¹¹ found that only 36 percent of patients with affected condyles displayed clinical symptoms. The unilateral distribution of the resorption is also supported by the literature.

The appearance of TMJ involvement in the case of M.B. is unusual in that such involvement is largely limited to polyarticular and systemic-onset JRA. Joint involvement in pauciarticular JRA is limited to four or fewer, usually large, joints. The authors believe TMJ involvement in pauciarticular JRA to be rare.



Figure 1. Enlargement of right condyle from Panorol® of patient M.B. Note scalloping of anterosuperior surface.

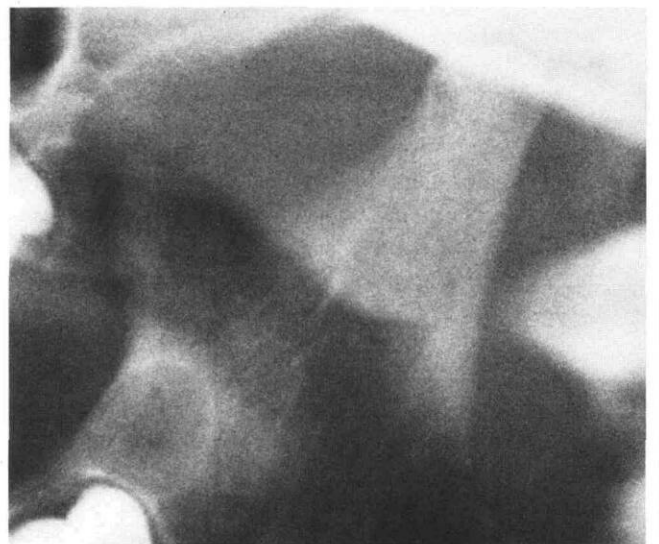


Figure 2. Enlargement of left condyle from Panorol® of patient M.B. demonstrating normal architecture.

The TMJ involvement is also unusual in the second patient since he has had systemic involvement primarily. The only remains of joint activity are the changes in the TMJ.

In addition, it can be seen from the figures that this type of joint destruction can be visualized in a panoramic radiograph. Inspection of these areas should not be overlooked in a routine evaluation of a panoramic film if they are included in the field of view.

The relatively high incidence of TMJ involvement in polyarticular JRA, as well as the potential for this joint to be involved without clinical signs and symptoms, suggests that routine TMJ exams be included as part of the patient's overall evaluation. It also seems desirable to include the pedodontist as an integral part of the team managing the JRA patient.

Conclusion

Juvenile rheumatoid arthritis should be considered a systemic disease which manifests itself primarily in the joints. TMJ destruction and micrognathia have been reported as a feature of the disease, but this may also be related to the use of steroids in treatment.¹³ The use of the newer non-steroidal anti-inflammatory drugs will decrease the incidence of the grosser changes that would be due to steroid therapy.

Although these two patients had no complaints of joint tenderness, it is possible that such symptoms may surface in the future. A history of JRA would indicate that the joint pain is most likely a result of exacerbation of the underlying disease, especially if the other involved joints also become symptomatic. The use of muscle relaxants such as diazepam is generally not indicated. While a short-term use of a bite guard could aid in ruling out muscle-related pain, such measures are unlikely to provide relief and should not be used for any great length of time in the developing dentition. The patient should be referred to the physician who may consider restarting, increasing, or changing the medication regime. Once the arthritis is controlled again, TMJ symptoms will probably subside.



Figure 3. Panoramic® of patient J.K. demonstrating field of view.



Figure 4. Enlargement of right condyle from Panoramic® of J.K. demonstrating flattening of superior surface.

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