

Imaging the Temporomandibular Joint, 1989

Joseph R. Thompson¹

Arthrography, CT, and MR offer new vistas for imaging the temporomandibular joint (TMJ), but also provide a dilemma for the radiologist: the determination of an appropriate diagnostic algorithm for the TMJ pain-dysfunction syndrome [1–4]. All of the following must be considered in devising such an algorithm: the prevalence of TMJ dysfunction; the relative infrequency of any TMJ disease besides internal derangement; the functional component ascribed to the disease; the high cost of imaging in order to confirm the diagnosis; the likelihood of symptomatic improvement despite almost any form of therapy; the TMJ patient's legacy to search for care in "no man's land" among practitioners; the radiograph machine in every dentist's office (everyone gets TMJ films in the dental office); the quality of CT, MR, and arthrography available in the community; the availability of arthroscopic diagnosis; the treatment methods advocated by the referring practitioner; and the diagnostic tests already carried out.

Two of the above factors seem to thwart the radiologist's attempts "to call the shots" more than any other: the natural history of symptom remission and the lack of a consensus regarding therapy methods. Of almost equal intimidation is the advocacy of a \$600 or \$800 examination for a problem that probably will respond to pain-control medication, physical therapy, and jaw splinting. And yet, many patients are greatly incapacitated by this illness, which can be clearly shown to be related to disordered joint mechanics and is often precipitated by trauma. What then can be the role of modern imaging for internal derangements in 1989?

That we have the ability with sectional imaging and arthrography to see fine features of the capsular and intracapsular structures of the TMJ can no longer be argued, although the details of the methodology may be controversial. Shouldn't we take advantage of these miracles of imaging in order to help patients who are suffering from internal derangement?

The ideal evaluation would be to start with MR for the disk position; confirm the abnormality and determine the disk function and integrity with arthrography; and reserve CT for the best definition of any resulting bone abnormality. However, such an approach seems almost ludicrous—if not tragic—in view of the cost-benefit ratio when applied to the large number of patients involved.

A disparity has evolved between our ability to image and describe features of the TMJ and our understanding of the etiology, functional pathology, natural history, and proper treatment of disk dislocation and other internal derangements of the TMJ. Until knowledge in these areas catches up with our ability to image, I fear that we shall continue to be unable to advise our colleagues about the best imaging algorithm for TMJ pain-dysfunction syndrome.

The best future for TMJ imaging, I believe, is a role in collaborative basic and clinical research in which the answers to the questions about altered structure and function can be aided by special imaging. The worst future lies with the continued advocacy of expensive imaging tests without the knowledge that they are being judiciously and appropriately applied.

REFERENCES

1. Katzberg RW. Temporomandibular joint imaging. *Radiology* **1989**;170:297–307
2. Donlon WC, Moon KL. Comparison of magnetic resonance imaging, arthrotomography and clinical and surgical findings in temporomandibular joint internal derangements. *Oral Surg Oral Med Oral Pathol* **1987**;64:2–5
3. Schellhas KP, Wilkes CH, Omlie MR, et al. The diagnosis of temporomandibular joint disease: two-compartment arthrography and MR. *AJNR* **1988**;9:579–588, *AJR* **1988**;151:341–350
4. Kaplan PA, Helms CA. Current status of temporomandibular joint imaging for the diagnosis of internal derangements. *AJR* **1989**;697–705

¹ Neuroradiology—A353, Loma Linda University, 11234 Anderson St., Loma Linda, CA 92354. Address reprint requests to J. R. Thompson.