Temporomandibular joint imaging: why?

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AJNR Am J Neuroradiol 1990, 11 (4) 843-844
http://www.ajnr.org/content/11/4/843.citation

Letters

Temporomandibular Joint Imaging: Why?

In a recent opinion [1], concern was expressed over the use and abuse of imaging procedures for the diagnosis of temporomandibular joint (TMJ) disorders, referred to as the "TMJ pain-dysfunction syndrome." I believe that "internal derangement of the TMJ" is more appropriate terminology [2, 3]. We do not talk about shoulder, spine, or knee dysfunction syndromes. Clinical investigations explain why TMJ symptoms occur [2–7]. Imaging procedures, particularly MR imaging [2–8], are useful in showing the following: (1) the presence or absence of joint (TMJ) disease, (2) the type and stage of disease that is present, and (3) whether this disease is active or quiescent.

The "relative infrequency of any TMJ disease besides internal derangement" was referred to, as well as the "functional" component of this disorder [1]. This conflicts with recent investigations [3–7]. These patients are no different from other patients who have musculoskeletal pain. With regard to the efficacy (cost-effectiveness) of TMJ imaging, I ask, "What are we looking for, and who is looking?" If either the referring clinician or radiologist (or both) is unfamiliar with TMJ disease, then imaging efficacy assuredly will be reduced. With regard to "how" to image the TMJ, I have found that a short radiographic and lateral tomographic series is a cost-effective screening procedure [3, 8]. MR is the tertiary imaging study of choice for the TMJ [2–8].

The opinion [1] refers to the disparity that "has evolved between our ability to image and our understanding of the etiology, functional pathology, natural history, and proper treatment of disk dislocation and other derangements of the TMJ." This concern is absolutely correct. The field of TMJ diagnosis and treatment is undermined by much ignorance and apathy. Medical schools typically (and inappropriately) view this as a "dental problem" and hence do not teach students about this area. Dental schools often are simply unable to address "bone and joint disease." This field desperately needs our input.

Diagnostic radiologists, with the powerful investigative tool that MR imaging is, have the opportunity to pursue clinical investigations and communicate their observations in scientific literature. Through high-tech imaging by knowledgeable radiologists, we will learn how to deal effectively with TMJ disease. This is an emerging field, and we radiologists should take a leadership role in educating our clinical colleagues.

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Reply

Regarding the letter of response by Dr. Schellhas to my opinion entitled "Imaging the Temporomandibular Joint, 1989" [1], I would like to make the following comments: First, my motivation for writing the article—the belief that much of the diagnosis and treatment of disorders of the temporomandibular joint (TMJ) in this country has a shaky scientific foundation that blends fact and fancy—has been expressed more clearly by Dr. Schellhas. Settling the controversy for oneself over whether a sound scientific argument exists that disorders of the TMJ are largely organic rather than functional is difficult if the plethora of published articles in the "scientific" literature is perused. Similarly distressing is the disparity of opinion about the methods claimed to be effective in treating the large group of patients who have TMJ disorders.

The position Dr. Schellhas and his colleagues have taken is that indeed TMJ symptomatology has an organic basis, which forms the basis of rational treatment approaches. His statement that the TMJ is subject to the same types of diseases as the appendicular joints is a fact that I recognize as well. I have no doubt that derangements of the TMJ are related to occlusal problems and other disturbances of jaw function, even though at this point not all the necessary details

of that relationship are understood, and that joint disorders other than internal derangements occasionally occur.

The difficulty I have is that the physician-dentist community at large is not united in its approach to TMJ problems. This stems in part from the diversity of specialists and generalists who involve themselves in this area of medicine; the TMJ has been claimed by everyone but not really by anyone. It also comes about because ignoring the TMJ in medical and dental curricula causes inadequate education about the TMJ. A third reason is the quagmire of literature that mixes fact and fancy. How do you get such a diverse group to begin a methodologic approach to dealing objectively with this population of patients? If you consider that this is not our concern as radiologists, then you take the position of cheapening your value as a consultant. Will you encourage referrals only from doctors that you think are qualified to treat patients who have TMJ disorders? Will you perform expensive tests even though you know that the information gained will be of no benefit, or even to the detriment, of your patient? How do you determine an algorithm for imaging when the management philosophy most probably is flawed? This is the point I was trying to make in "Imaging of the Temporomandibular Joint, 1989."

Again, I wish to say that collaborative research with the aid of special imaging will help improve our understanding of the etiology, functional pathology, natural history, and proper treatment of TMJ disorders. However, perhaps I am obliged to add that educating ourselves and our colleagues who refer patients to us (and this is after all once again emphasizing the basic role of the radiologist as a teacher) certainly will help get diagnosis and treatment of TMJ disorders on a rational, scientific footing.

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Terminology for Herniation of Intervertebral Disks

I read with interest Dr. Taveras's editorial entitled "Herniation Intervertebral Disk: A Plea for a More Uniform Terminology [1]. I agree that radiologists must develop a standard terminology. However, I propose a different approach from that of Dr. Taveras. Rather than use "disk protrusion" as a synonym for "disk bulging," as Dr. Taveras suggests, I recommend we use the term disk protrusion as a generic expression to refer to any abnormality in which disk material projects into the spinal canal. This would include true nuclear herniation as well as what now is termed disk bulging. This would make it possible to use the expression disk protrusion the same way the word "osteopenia" is used in conventional spinal radiology.

My reasons for these suggestions are as follows: (1) In many cases, I find it difficult to decide if herniation of the nucleus pulposus is present; (2) actual herniation may not be the only clinically significant disk abnormality (i.e., anular protrusion may be clinically significant); and (3) the meaning of the word protrusion is ideal for the use I propose. Also, it does not have the benign connotation of the term disk bulging (a consequence of years of reports on CT scans).

It is not my intention to have radiologists avoid making a decision by using a term such as disk protrusion. Certainly, in many instances, they can be sure that a herniated nucleus pulposus is present. It is just that we need an expression that allows us the flexibility of describing a significant extradural disk abnormality independent of whether we think the abnormality is a herniated nucleus pulposus. I think that the term disk protrusion serves this purpose.

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Reply

I fear that Dr. Horowitz's simplification is exactly the thing that we should avoid. I agree that a disk that goes beyond its margins is, by definition, a protruding disk. However, the protrusion may be "generalized," which denotes a degenerative process but does not necessarily imply that a lesion is or is not clinically significant. Also, the protrusion may be "focal," which by definition would be a herniation of the intervertebral disk. This does not indicate whether the lesion is clinically significant. The herniation could lie between the roots in the midline without compressing any root, or it could be so small that it does not displace or compress the roots. The conclusion that a generalized protrusion of the intervertebral disk is present should be followed immediately by the statement, "This most likely is due to disk degeneration," to make the interpretation clear.

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