

The Evidence on Emerging Issues: Providing Patient Care in the Absence of Evidence

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This article addresses the application of evidence-based methods for diagnosis of dental pain. Patients in pain may seek diagnosis and treatment options through Internet sources but incomplete information and lack of context are barriers to patient understanding. Dentists face similar challenges, especially when there is no strong evidence. Diagnostic error may also be precipitated by clinician overconfidence. Understanding the strengths and weaknesses of evidence and placing evidence in context are crucial skills for dentists practicing within the evidence-based paradigm.

Keywords: Non-odontogenic Pain, Atypical Odontalgia, Neuropathic Tooth Pain, Patient Decision Making.

CASE STUDY

“Eunice” is a 63-year-old female whose chief dental complaint is pain in #9/#10 area. Her medical history reveals osteoporosis, hypertension, and osteoarthritis. The patient’s medications include alendronate, 70 mg once weekly; lisinopril, 5 mg each day; and etodolac, 300 mg twice each day. Eunice is a health professional, divorced, and recently remarried. She is intelligent, motivated, and compliant.

Eunice’s subjective report describes pain that grows worse throughout the day, disrupts sleep, and is somewhat relieved by cold. The area has hurt periodically for several months since perio-scaling was completed. The pain is not paroxysmal, but the intensity had been increasing for the preceding 2 weeks.

Relevant findings from the oral exam include mesial and distal composites in tooth #9, and a clinically acceptable porcelain crown on tooth #10. Tooth #10 also exhibits a discrete 6-mm pocket along the mesio-lingual root with bleeding after probing. A periapical radiograph (Fig. 1) shows probable recurrent caries on the distal of #9, and apparently adequate endodontic fill, post, core,

and crown on tooth #10. The radiographic appearance of the alveolar bone is judged unremarkable.

Given the above information, write down your best diagnosis for the pain and assign a confidence level. For example, if you are confident in your diagnosis you might write 90% or 95%. Write 50% or less if you are not very confident in your diagnosis. It is important for this exercise to commit to a diagnosis and a level of confidence.

A diagnosis of pain from periodontal inflammation on #10 was made. The site was curetted and the distal restoration on #9 was replaced. After several days the pain was unchanged. In light of the new information, write down your diagnosis and confidence level.

The new diagnosis was probable cracked tooth #10. The crown was removed and #10 was examined. No clinical evidence of fracture could be found and the tooth was temporized. The pain continued without change. Has your diagnosis or confidence level changed?

The patient was now convinced the pain was coming from tooth #9. An exaggerated response to pulp testing #9 was recorded. Write your diagnosis and confidence level.

A new diagnosis of irreversible pulpitis in #9 was made. Root canal therapy was completed for tooth #9. After root canal therapy the pain remained unchanged. In light of this new information, write down your new diagnosis and confidence level.

At this point, the patient was desperate because the pain was refractory to analgesic medication and all treatments thus far. She now insisted that #10 was the

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Figure 1. Periapical radiograph #9 and #10.

offending tooth and the consensus was that #10 had an occult fracture. The exasperated patient wanted #10 extracted immediately. Tooth #10 was extracted. Interestingly, the extraction was painless, but the underlying pain was not entirely eliminated while the patient was anesthetized.

After several days the patient reported that the pain was more intense, but its character was unchanged. In light of this new information, write your new diagnosis and level of confidence.

COMMENTARY

Developing a differential diagnosis is occasionally difficult because we don't recognize what we don't look for. Odontogenic pain seemed logical at first and most pain cases we confront in our practices fit that category. Evidence-based dentistry (EBD) may help us to see what we are not looking for and broaden our differential diagnosis.

A PubMed search for reviews of pain diagnosis using the strategy: ("Toothache"[Mesh] AND "Diagnosis"[Mesh])

while applying limits: Humans, Practice Guideline, and Review yielded 50 citations on April 25, 2009. One review article with an interesting title lists sources of dental pain including reversible pulpitis, dentin sensitivity, recent dental work, irreversible pulpitis, cracked tooth syndrome, pulpal necrosis, periodontal abscess, gingival abscess, periimplantitis, pericoronitis, and necrotizing ulcerative gingivitis.¹

Eunice could easily have sought a diagnosis for her pain by performing the same search. The accessibility of medical information to virtually anyone has been called a democratizing force by Djulbegovic et al,² but it has limitations when actually applied by the patient. In this case, Eunice would not have hit on the appropriate diagnosis for her pain by reading the review. The journal article is a narrative review and makes no claim to have listed all of the possible sources of pain. The obvious difficulty is distinguishing between incomplete information and systematic knowledge in context with the latter's putative association to comprehensiveness.

Patients may actually spend considerable time researching their specific ailment but do they have the expertise to critically appraise and interpret what they read? Some generalizations impacting patient interpretation of information are that patients

- Are not usually comfortable with the language of dentistry
- May be more likely to rely on sources that are not peer reviewed
- May distrust or not recognize good sources such as the American Dental Association or the Cochrane Oral Health Group
- Are not generally accustomed to the ideological debates within dentistry and may be misled by strident opinions that dentists generally interpret as such.

A more disturbing question is whether dentists make the same mistakes. For example, do most dentists know the difference between a narrative review and a systematic review? Unlike narrative reviews, a systematic review is a transparent and rigorous attempt to consider all of the evidence associated with a particular clinical question. It is perilous for clinicians to ignore systematic reviews because they generally represent the highest level of scientific evidence. On the other hand, as Austin Bradford Hill³ observed more than 50 years ago, "We cannot necessarily, perhaps very rarely, pass from [research evidence] to stating exactly what effect the treatment will have on a particular patient." Iain Chalmers⁴ takes this theme and states the problem succinctly as "identifying which individuals are likely to benefit from or be harmed by treatments, and avoiding the false inferences that can result from biases and chance associations." Clinicians need to know what the systematic reviews say while recognizing their limitations. In other words, we need knowledge, but we also need metaknowledge or knowledge in

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