History of imaging in orthodontics: A history of overdiagnosis?

The stunningly informative and passionate Centennial Special Article by Hans et al on the successful history of x-ray imaging in orthodontics will surely impress readers.1 Without doubt, we agree with the authors’ standpoint that the history of x-ray imaging in orthodontics has contributed enormously to our understanding of craniofacial growth and thus to the development of orthodontics as a specialty. Yet while writing with such contagious enthusiasm that shows their persuasion of the importance of x-ray imaging in orthodontics, the authors have left little space for mentioning the risks of overimaging or overdiagnosis.

Imaging is by far the most common service on the lists of unnecessary tests cited by the Choosing Wisely campaign,2 a critical movement that has also been joined by the American Dental Association. They have estimated that 20% to 50% of imaging diagnostic measures are unnecessary.3

However, the routine use of diagnostic tests such as x-ray cephalograms in orthodontics may represent an overdiagnosis and be a potential source of harm to our patients.3 Studies have suggested that these procedures do not influence treatment planning and thus may be unnecessary.4 Moreover, recent guidelines suggest serious restrictions of the indications for x-ray diagnostics for orthodontic purposes.5

Although the authors emphasized the potential of cone-beam computed tomography as an alternative because of a lower radiation dose compared with panoramic x-rays, every radiography technique, regardless of the radiation dose, represents an unpredictable health risk. Thus, it should be avoided when possible.

We recommend that, simultaneously with emphasizing the importance of imaging, orthodontists should review the indications with extreme care to identify and reduce overimaging and protect patients from unnecessary radiation.

In conclusion, enthusiasm and emphasis on radiographic imaging is justified, yet concerns about the side effects should be raised. Not doing so may turn the history of imaging in orthodontics into a history of overdiagnosis. On the contrary, by joining the Choosing Wisely campaign, orthodontists would support the efforts toward reducing diagnostic overuse and demonstrate honest care for the health of patients, thereby making the history of orthodontic imaging even more successful.

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REFERENCES


Authors’ response

Writing a summary article on the history of craniofacial imaging (Hans MG, Palomo JM, Valiathan M. History of imaging in orthodontics from Broadbent to cone-beam computed tomography. Am J Orthod Dentofacial Orthop 2015;148:914–21) is similar to writing about the greatest quarterbacks in American football. Everyone has an opinion. In Cleveland, we would choose Otto Graham, whereas Denver would likely vote for John Elway. I am sure that every region in the United States would enter that debate from a different perspective!