Letters

Not all bone loss created equal

The relationship between orthodontics and periodontics is an important one. However, what is good for one may not be good for the other. In "What's new is dentistry" (Angle Orthod 1995;65(6):388) Dr. Vincent Kokich reports on an article describing the use of Ketorolac mouth rinses in the reduction of bone loss. He suggests that these mouth rinses may be useful "to help minimize bone resorption during tooth movement."

If one reviews the mechanism of tooth movement and the mechanism of Ketorolac prevention of bone loss, a problem becomes self-evident. Ketorolac is a non-steroidal anti-inflammatory drug (NSAID). These drugs act by inhibiting prostaglandin synthesis. Prostaglandins are chemical mediators involved in a whole host of activities, including vasodilation, pain, and bone resorption (Williams and Jeffcoat, Science, 1985;227:640-642, and Jeffcoat et al. Periodontol 1995;66:329-338). Orthodontic tooth movement is the result of bone resorption on the compression side and bone formation on the tension side. Therefore, an inhibition of prostaglandin synthesis in the periodontium would disrupt bone resorption on the compression side. In fact, Chumbley and Tuncay have shown that indomethacin (an NSAID) reduced the rate of orthodontic tooth movement in cats to one-half the normal rate (Am J Orthod 1986;89:312-14). Furthermore, Giunta et al. recently demonstrated that bone turnover was significantly lower in indomethacin groups than in controls (Am J Orthod 1995;108:361-66.) Accordingly, it may be advisable to proceed with caution when prescribing Ketorolac mouth rinses in patients undergoing orthodontic tooth movement.

One additonal point: The article cited as the basis for the "What's new" segment is incorrect. Perhaps the intended citation was: Jeffcoat et al. A comparison of topical Ketorolac, systemic Flurbiprofen, and placebo for the inhibition of bone loss in adult periodontitis. J Periodontol 1995;66:329-338.

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Skeletal Class III relationship

I am writing to express my point of view concerning a case report recently published in The Angle Orthodontist (Artun J, Alexander CD, Ellingsen RHL. Case Report MH: Treatment of a severe Class II, Division 1 malocclusion in a growing female with Class III skeletal relationship, low mandibular plane angle and prominent nose and chin. Angle Orthod 1995;65(6):389-394).

First, I would like to congratulate Dr. Artun, Dr. Alexander, and Dr. Ellingsen for a very well treated case. However, I disagree that the patient has a skeletal Class III relationship.

No cephalometric measurements were given in the article and the initial cephalometric tracing was enlarged on a copy machine. Sets of enlargements were given to three individual orthodontists for measuring. The ANB angle on the three measurments ranged from -1.5° to -2.0°, the Wits appraisal was +5 mm, and the FH-NPog measured 86°. In his article "The Geometry of Cephalometrics," (J Clin Orthod 1979:258-263), Binder mentions that "The ANB angle increases positively or negatively as point N moves anteriorly or posteriorly, although no change has occurred in sagittal position of the apical bases themselves." Table 3 of that article (page 260) shows that for every 5 mm of forward positioning of point N, there is a decrease of the ANB angle of 2.5°.

Casko and Shepherd, in their article "Dental and skeletal variation within the range of normal" (Angle Orthod 1984;54(1):5-17), write: "The ANB angle on these ideal occlusion subjects ranged from -3° to +8°, covering an 11° range... When the ANB angle is high, the mandibular plane is steeper, the cant of the occlusal plan is high, and the incisors are more upright in the maxilla and more protrusive in the mandible."

For those reasons, I do not agree that the patient has a Class III skeletal relationship. In my opinion, the patient has a Class II skeletal relationship with a tendency for maxillary skeletal retrusion, a mandibular skeletal retrusion, a low mandibular plane angle, maxillary dental protrusion, and a tendency to mandibular dental retrusion.

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Author's response

Dr. Lifshitz raises the valid point that interpretation of the severity of certain cephalometric deviations should be adjusted according to deviations of possible confounding cephalometric variables. Dr. Alex Jacobson was the first to point out that a counterclockwise rotation of the jaws (i.e., a low mandibular plane angle) and a posterior position of the jaws relative to nasion (i.e., a small SNA) both have the effect of reducing the ANB angle, and vice versa (Am J Orthod 1975;67:125-38). Jacobson introduced Wits appraisal for a more valid interpretation of sagittal jaw relationship in such situations. According to this, our case may not have had a skeletal Class III relationship, despite the fact that the ANB angle was -2°, because the SNA angle was only 71° and the mandibular plane angle only 24°. This is emphasized by the fact that Wits appraisal was positive. In a later article, (Am J Orthod 1976;70:179-89) Jacobson also pointed out that a low mandibular plane angle has the effect of increasing the SNA angle, and vice versa. According to this, our case may be interpreted to have a more severely retrognathic maxilla than the SNA angle of 71° indicates. Therefore, a more appropriate title might have been: Treatment of a severe Class II, division 1 malocclusion in a growing female with severely retrognathic maxilla, low mandibular plane angle, and prominent nose and chin.

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