

An Indication For The Three Incisor Case

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For many years orthodontists have grappled with the problem of trying to define their goal or purpose. Even with regard to "normal" no static concept has been acceptable to the profession. From initial attempts to strive for an ideal position of each and every tooth in every individual, orthodontists have moved to more realistic ground.

This article has been written to emphasize that in one type of malocclusion to achieve an individual normal occlusion and to overcome the problem of lower incisor crowding the treatment plan should include removal of one of the four lower incisor teeth.

As we study these cases, as we evaluate alternative approaches and as we strive to eliminate that which is least promising and embrace that which is proper for the individual concerned, we must give consideration to the possibility of a three incisor case. We should be ready to adopt such methods that permit us to achieve desirable results.

For the purpose of putting these remarks into a more meaningful framework and before scrutinizing the case records which will be offered, it is important to review certain contributions to our literature and explore some concepts that have been guideposts to orthodontists.

Angle urged us to maintain the full complement of teeth and place them all in normal occlusion. To him this was the only logical plan. His feeling was, "Malpositions of teeth consist principally in the variation of the positions of their crowns from the normal, with usually little displacement of the apices of their roots." Once the profession had

acquired intermaxillary anchorage, Dr. Angle could see no reason for removal of teeth even though advocates claimed that they gained "sufficiently good occlusion", or "serviceable occlusion" of the remaining teeth, with good balance of the face.¹

Orthodontics has always sought to obtain definitions to serve as guides for the practical management of malocclusion. One of the most comprehensive was offered by Strang.² "Normal occlusion of the teeth may be defined as that structural composite consisting fundamentally of the teeth and jaws and characterized by a normal relationship of the so-called occlusal inclined planes of the teeth that are individually or collectively located in architectural harmony with their basal bones and with cranial anatomy, exhibit correct proximal contacting and axial positioning and have associated with them normal growth, development, location and correlation of all environmental tissues and parts."

More recently the concept of an "Individual Normal Occlusion" was discussed by Hemley. It is defined as, "One which differs from all other normal occlusions to some extent, but still satisfies all of the requirements of a normal occlusion." This concept recognized that there is variation within the range of normal, which variation might be considered abnormal if we were to adhere to the concept of the hypothetical ideal as the ultimate goal. He notes that the ultimate standard of normal should be functional adequacy for the particular individual concerned.³

Waldo indicates that a proper con-

ception of normal amounts to the acceptance of any condition as normal unless it can be demonstrated not to be so. He emphasizes the importance of fitting our treatment to the needs of the patient to aim not at dental perfection, but at removal of handicaps. He goes on to add that this approach demands more careful, mature thought than a conventional approach, and a much more thorough knowledge of the patient.⁴

We consider the individual's normal occlusion (the goal of orthodontics) to be one which gives him:

- a) Functional adequacy (a good functional occlusion).
- b) Denture stability (the least chance of undesirable post-treatment movement).
- c) Dental longevity (the best chance to maintain his dentition in a healthy state for the longest possible time).
- d) Esthetic harmony (enables his appearance to be pleasant and unstrained and proper for his age and state of development).

The latter seems worthy of additional comment. It is acknowledged that many changes occur in the face even after the early teenage years. Growth and development continue in the period that follows the usual period of orthodontic care. As we orthodontists appreciate that it is not our purpose to place upon a young child the face we are more apt to see on a more mature person, then this qualified version of esthetic harmony might more readily be accepted as one of our goals.

In discussing our cases it will be shown that the end result in each instance has been an "individual normal occlusion". The above-listed four goals have been our objectives and have been achieved.

Most orthodontists have treated a three incisor case since patients have presented themselves with absence (congenital, traumatic, etc.) of a lower incisor.

Case 209 was a thirteen year old girl with a malocclusion characterized by the absence of one lower incisor tooth. The molars were in a Class I relationship. There was contraction of the maxillary arch, overlapping of the upper incisors, and insufficient space for the proper eruption of the maxillary cuspids. It was thought that, although a definite and considerable improvement was to be anticipated, an ideal result could not be achieved. By overdriving the maxillary posterior teeth and regaining proper buccolingual position of these posterior teeth, as well as rotating and stripping certain maxillary teeth, sufficient arch dimension could be gained to properly align the upper anteriors. At the conclusion of treatment occlusal equilibration would be needed. After retention some occlusal changes were to be expected as the natural forces come into play.

Figure 1 shows the casts before treatment and Figure 2 four years later, after removal of retention.

It has been demonstrated that the three incisor case can be successful. It is necessary now to elaborate on why it may be called for.

In a section of his article entitled, "Phylogenetics, The Teeth and Their Occlusion", Berger states that, as psalidonty (scissor bite) is today regarded as the normal bite, we must remember that this is a rather recent acquisition and that even at present labiodonty (edge to edge bite) is still the bite of Australian aborigines and Eskimos; it is the change-over from labiodonty to psalidonty which is responsible for the high frequency of mandibular incisor crowding.⁵

Wylie, however, states that crowding

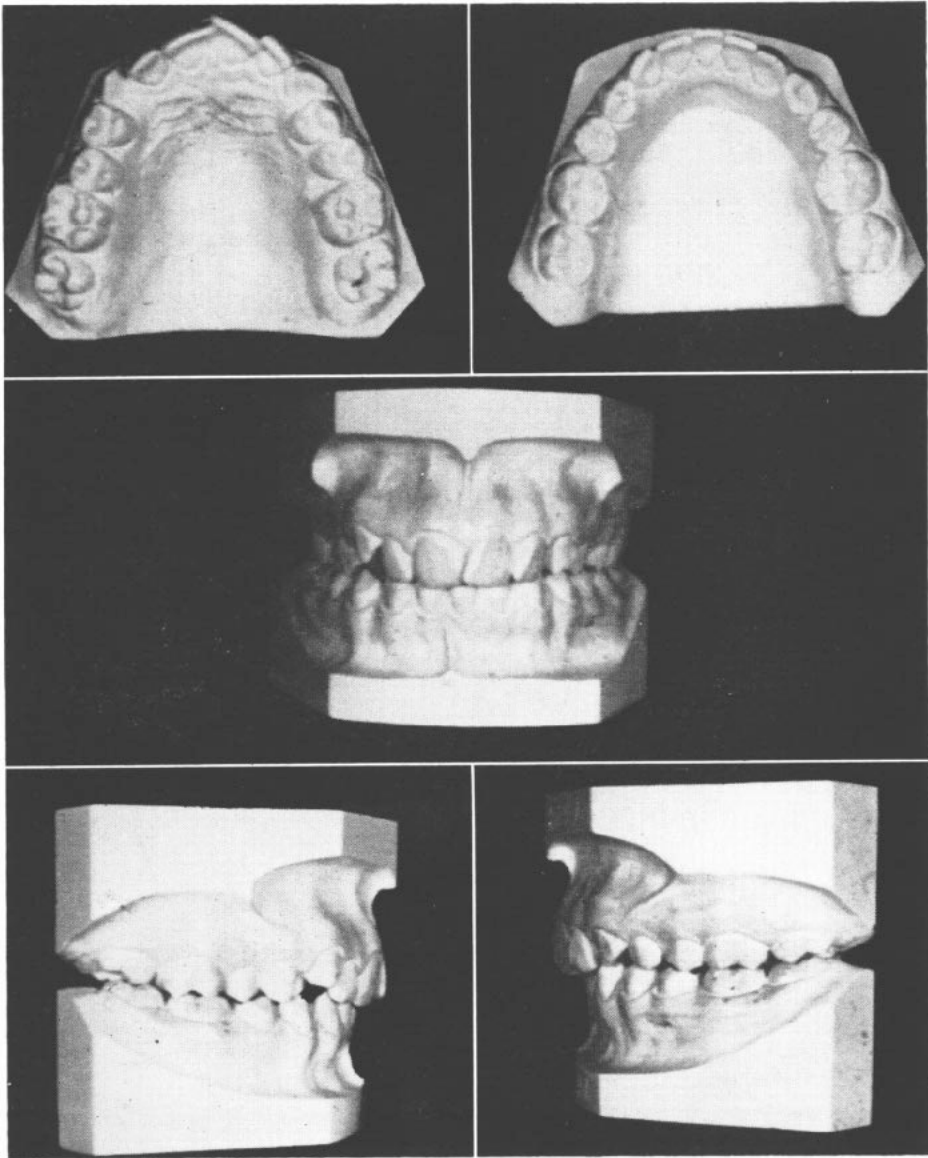


Fig. 1

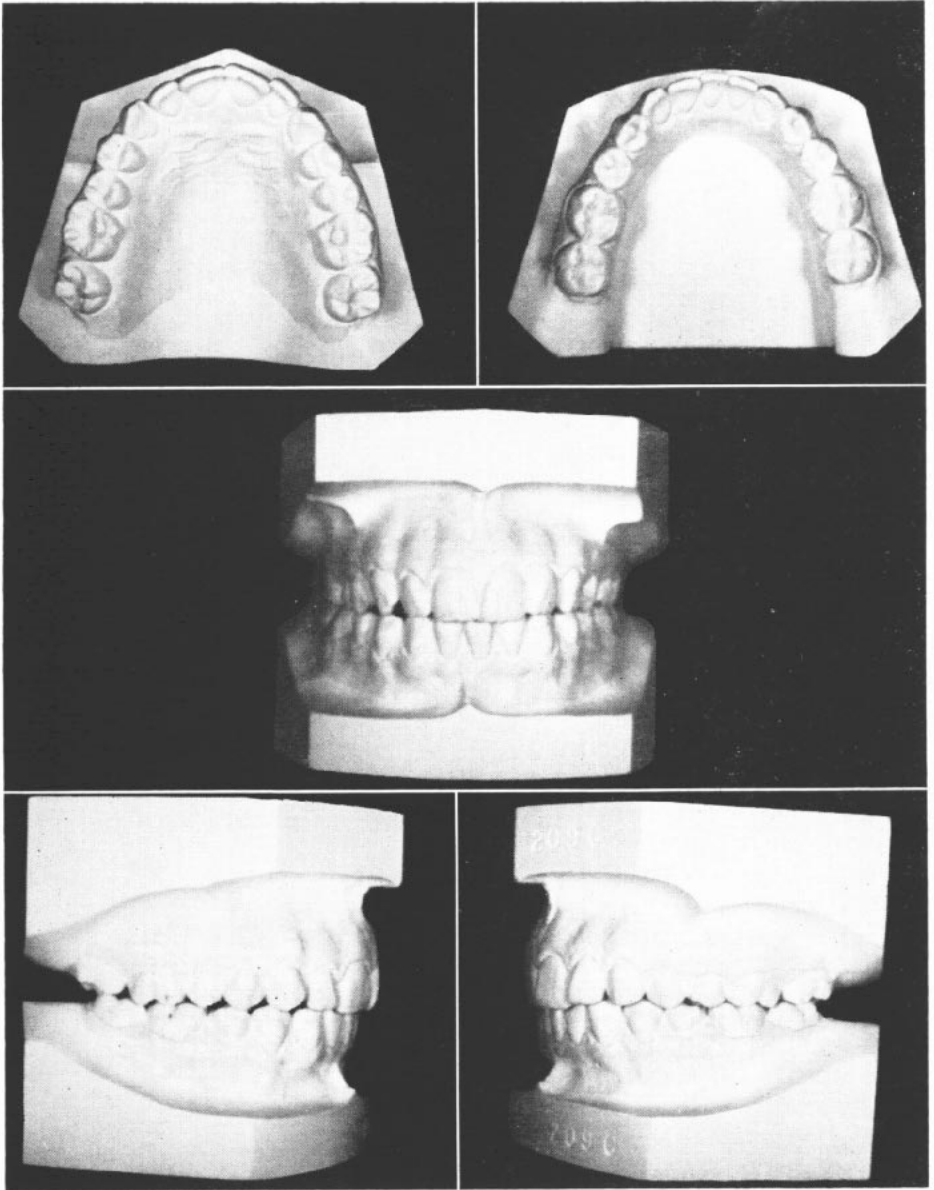


Fig. 2

is apparently not so much a malrelationship between bone size and tooth size as it is the manifestation of muscle forces in the positions of teeth.⁶

Hopkins⁷ observes, "It becomes apparent that present-day thinking confirms former suspicions that crowding of mandibular incisors occurs frequently with normal growth."

Another factor to consider is the possible existence of tooth size discrepancy. Many contributions have been made in recent years relative to the comparative size of the maxillary anterior and mandibular anterior teeth. Neff⁸ describes the A. P. R., the anterior percentage relation. In 300 malocclusions he found the maxillary anterior teeth are between 18 and 36 percent larger than the lower anteriors. He indicates that a compensation should be made for segments that are not in harmony. He would like to control the overbite and offers a table showing the indicated overbite for different values of A. P. R.

I am not able to share the confidence that Neff exhibits. Although we strive diligently to control the overbite, it is doubtful whether one can predict exactly what the overbite will measure at the conclusion of treatment.

Lundstrom doubts that an adjustment of the overbite or overjet is the method used by Nature for accommodation of disharmonies in the tooth width ratio between upper and lower jaws.⁹

After selecting fifty-five excellent occlusion cases and making various measurements, Bolton noted, "The degree of overbite had a wide range of variability within this sample of excellent occlusions."¹⁰

Horowitz, Osborne and De George believe:¹¹ "Genetically conditioned variations of a highly significant nature occur in eight of the twelve anterior teeth studied. The canine teeth demon-

strate a relatively low hereditary component of variability."

Since the canines are the relatively stable members of the anterior segment in size as well as position and, since it is the incisors which will tend to vary greatly in mesiodistal dimension, Berger suggests that an Incisor Index would be more meaningful. He states, "It was found that the mean for the Incisor Index was 73 percent with a range of 63 to 86 percent and therefore not much different from the means found from previously published anterior indices. It deviates from them by the much greater range which is nearly twice as large." The material for this investigation consists of three hundred orthodontic patients.¹²

As important as these investigations into tooth size have been and as fruitful, yet it seems that variations in tooth size and disrelation between maxillary incisor and mandibular incisor segments are but two factors in a host of factors which we must weigh in deciding upon the proper management of each orthodontic patient.

One thing seems certain. When forced to, we can successfully treat a three incisor case. Possibly we should learn from this experience and apply the procedure purposefully in the treatment of certain malocclusions.

The vague feeling that an incisor might be removed under certain circumstances was strengthened by virtue of some success in treating cases such as the one previously shown. The next step was to apply the method properly.

Many times we see a malocclusion which can be described as follows: 1) Although a Class I, there is more mesial relationship of all the lower posterior teeth relative to the upper posteriors than is expected in "normal" occlusion. 2) Crowding of the lower anterior teeth is present. 3) There is

a close proximity of the apices of several of the lower incisors. 4) There exists an underdevelopment of the premaxillary area. 5) There is a tendency for an anterior relation of the mandible to cranial base. 6) Facial appearance is characterized by an inclination to lower face protrusion. 7) There may be an Incisor Index greater than 73 or 75%. 8) There is a proclivity to a short ramus, an obtuse gonial angle, and a long body of the mandible.

This type of malocclusion should not be confused with the so-called pseudo Class III case; it is not an occlusal discrepancy or premature contact which is causing the mesial tooth position or the forward displacement of the mandible.

In this malocclusion the removal of one lower incisor tooth frequently offers the promise of the following advantages: 1) improvement of facial esthetics by reducing mandibular protrusive appearance, 2) the ability to align easily the remaining anterior teeth, 3) better opportunity to bring about an overbite which we deem to be esthetically favorable and functionally effective, 4) obviates the need for prolonged and difficult mechanics which would be necessary to effect an "ideal" occlusion, the stability of which would be uncertain, 5) enables us to place the upper anterior teeth in correct and pleasing axial positions without straining them forward over a full complement of lower anterior teeth.

The following case is offered not as absolute proof of the validity of our argument but as an instance in which one lower incisor was removed with a favorable end result.

Case 210 is a fourteen year-old young lady with a Class I, resembling a Class III, malocclusion. The most notable features of her condition are: a) An underdevelopment of both arches. In

the lower the anterior teeth are crowded and bunched; in the upper arch the right canine does not have sufficient room to erupt while the incisors are crowded, the upper right lateral and the left central being in lingual version. b) There is a general underdevelopment of the premaxillary section of the upper jaw. c) There exists a more mesial relationship of all the lower posterior teeth relative to the upper posteriors than is expected in "normal" occlusion. d) There is a tendency for a forward relation of the mandible to cranial base.

A conservative approach seemed unwise because of the increase of mandibular arch length which would have been needed to properly accommodate all the teeth. It seemed that harmony could not be restored between maxillary anterior and mandibular anterior teeth.

The removal of the lower right lateral incisor seemed proper, especially in view of the marked malposition of the lower right canine. Figure 3 shows the models before treatment and Figure 4 the models four years later after removal of retention.

SUMMARY

This article has stressed the need to achieve an "individual normal occlusion". It has offered a definition of the term which could delineate the goal of orthodontics.

We have presented a case in which there was congenital absence of one lower incisor tooth.

The removal of a lower incisor tooth was an important factor contributing to the successful end result of another case.

We have pointed out that orthodontics has its limitations. We often choose one procedure over another, on the basis that the one offers more advan-

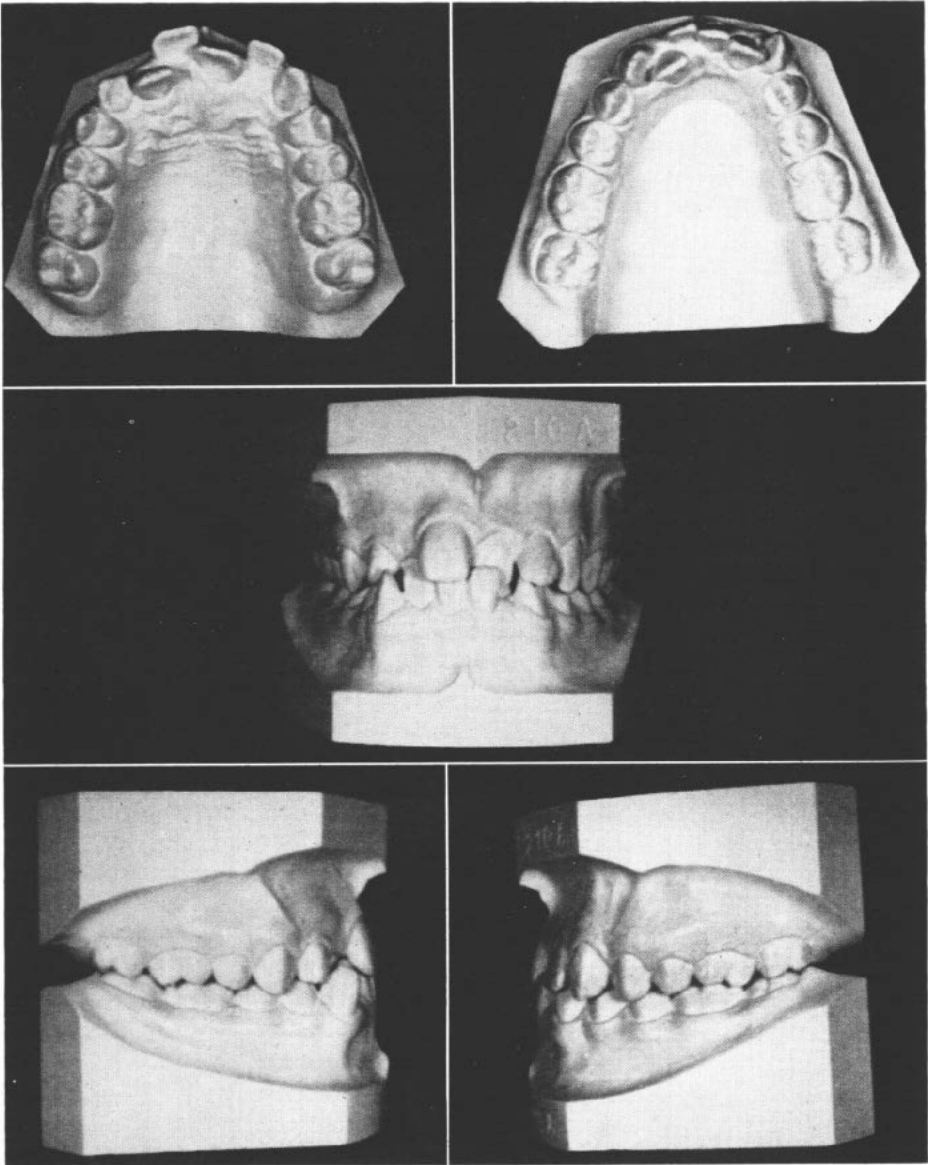


Fig. 3

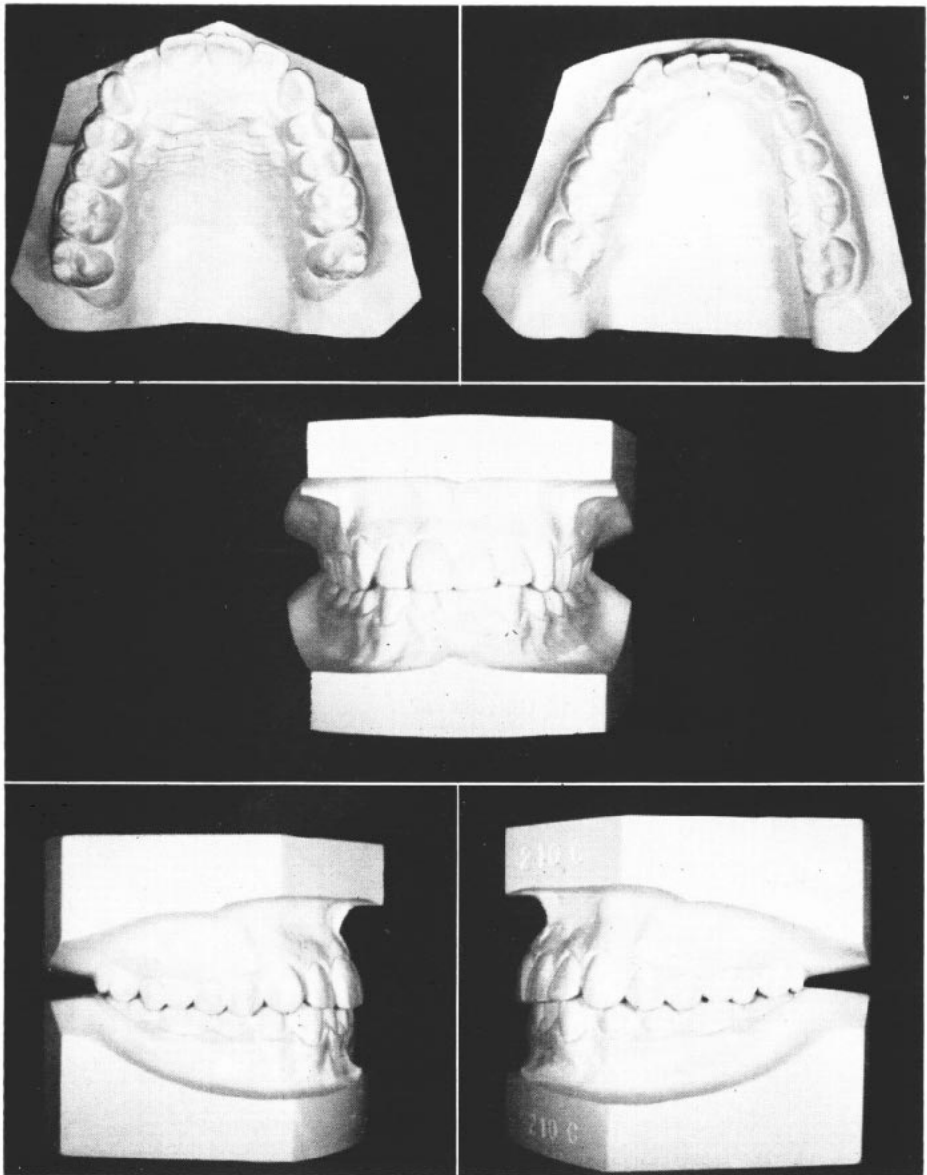


Fig. 4

tages and less disadvantages than we judge the other offers.

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