



## Original Research

# Influence of the presence, congenital absence, or prior removal of third molars on recurrence of mandibular incisor crowding after orthodontic treatment: Systematic review and meta-analysis



Matheus Melo Pithon<sup>a,b,\*</sup>, Felipe Carvalho Souza Baião<sup>a</sup>,  
Letícia Iandeyara Dantas de Andrade Sant'Anna<sup>a</sup>, Raildo da Silva Coqueiro<sup>a</sup>,  
Lucianne Cople Maia<sup>b</sup>

<sup>a</sup> Southwest Bahia State University, Healthy I, Jequié, Bahia, Brazil

<sup>b</sup> Federal University of Rio de Janeiro, Rio de Janeiro, Brazil

## ARTICLE INFO

## Article history:

Received 28 July 2016

Accepted 6 March 2017

Available online 20 March 2017

## Keywords:

Third molar

Crowding

Mandibular

Incisor

## ABSTRACT

**Objectives:** Was to seek scientific evidence that supports the causality between the presence of third molars and recurrence of mandibular incisor crowding after orthodontic treatment.

**Methods:** A systematic search of the literature was conducted, without limitations on year of publication and language, in the following electronic databases: Scopus, PubMed, Web of Science, Medline, Embase, Cochrane, Controlled Trials and Grey Literature, in addition to manual search in the lists of references of articles included. Included in the review were clinical studies conducted with patients undergoing orthodontic post-treatment, without limitation of sex and/or age (P), who had third molars removed (I), compared with patients who were not submitted to third molar extraction (C), with the main outcome being the crowding of mandibular incisors in the orthodontic post-treatment period (O). In order to conduct the meta-analysis the primary outcomes (irregularity index, intercanine width and length of arch) were recorded as continuous variables. The data were tabulated and analyzed in the software program MedCalc - version 13.1.2.0.

**Results:** 239 articles were found in the databases used. After application of the eligibility criteria and removal of duplications, only 6 articles remained. The results of the meta-analysis indicated no significant difference in the irregularity index and intercanine width in the groups with the third molar present or extracted.

**Conclusion:** The presence of third molars had no repercussion on the irregularity index and intercanine width, thus the presence of third molars appear to exert no influence on the recurrence of crowding of mandibular incisors.

© 2017 World Federation of Orthodontists.

## 1. Introduction

Mandibular incisor crowding after orthodontic treatment has been the target of various discussions throughout the history of orthodontics, particularly with regard to its etiology. Hasegawa et al., 2013 have related crowding to the reduced perimeter of the arch or to the presence of the third molar [1]. Zachrisson [2], however, affirmed that inferior incisor crowding during the orthodontic postcontainment period is a multifactorial phenomenon.

Angle [3] believed that by attaining normal occlusion with orthodontic treatment, stability of the arches would be achieved. Nevertheless, this is not what is clinically observed. It is easy to find cases with excellent dental intercuspation, with teeth well positioned in their bony bases, which present recurrence after conclusion of orthodontic treatment and/or removal of the splinting devices [4]. Authors such as Myser et al. [5] have pointed out that the crowding developed in this phase would be relatively small when compared with cases that had not received previous orthodontic treatment. Therefore, one could say that the long-term stability of occlusion is one of the greatest challenges of orthodontic treatment [6].

The supposition that the eruption of third molars would be an etiological factor or be predisposing to the development of mandibular incisor crowding after orthodontic treatment continues

\* Corresponding author: Healthy I Southwest Bahia State University, Av. Otavio Santos 395, sala 705, Centro Odontomédico Dr. Almirando d, Vitória da Conquista, Bahia, Brazil.

E-mail address: [matheuspithon@gmail.com](mailto:matheuspithon@gmail.com) (M.M. Pithon).

**Table 1**  
Database and method of search

Database	Search strategy
Pubmed	(((((third molar AND crowding AND orthodontics AND recurrence)) OR (third molar AND incisor AND mandibular AND crowding)) OR (third molar AND mandibular AND dental arch AND crowding)) OR (third molar AND tooth eruption AND mandibular AND crowding)) OR (third molar AND mandibular AND dental arch AND crowding AND (orthodontics OR orthodontic appliance)) OR (third molar AND incisor AND mandibular AND crowding AND (orthodontics OR orthodontic appliance)) OR (third molar AND crowding AND orthodontics AND (recurrence OR relapse)) Results: 60
Scopus	(TITLE-ABS-KEY(third molar AND crowding AND orthodontics AND recurrence) OR TITLE-ABS-KEY(third molar AND incisor AND mandibular AND crowding) OR TITLE-ABS-KEY(third molar AND mandibular AND dental arch AND crowding) OR TITLE-ABS-KEY(third molar AND mandibular AND dental arch AND crowding AND (orthodontics OR orthodontic appliance)) OR TITLE-ABS-KEY(third molar AND tooth eruption AND mandibular AND crowding) OR TITLE-ABS-KEY(third molar AND mandibular AND dental arch AND crowding AND orthodontic appliance) OR TITLE-ABS-KEY(third molar AND crowding AND orthodontics AND relapse)) Results: 57
Web of Science	Topic=(third molar AND crowding AND orthodontics AND recurrence) OR Topic=(third molar AND incisor AND mandibular AND crowding) OR Topic=(third molar AND mandibular AND dental arch AND crowding) OR Topic=(third molar AND tooth eruption AND mandibular AND crowding) OR Topic=(third molar AND mandibular AND dental arch AND crowding AND (orthodontic OR orthodontic appliance)) OR Topic=(third molar AND incisor AND mandibular AND crowding AND (orthodontic OR orthodontic appliance)) OR Topic=(third molar AND crowding AND orthodontics AND (recurrence OR relapse)) Results: 25
Embase	third AND ('molar'/exp OR molar) AND ('crowding'/exp OR crowding) AND ('orthodontics'/exp OR orthodontics) AND ('recurrence'/exp OR recurrence) OR (third AND ('molar'/exp OR molar) AND ('incisor'/exp OR incisor) AND mandibular AND ('crowding'/exp OR crowding)) OR (third AND ('molar'/exp OR molar) AND mandibular AND dental arch AND ('crowding'/exp OR crowding)) OR (third AND ('molar'/exp OR molar) AND ('tooth'/exp OR tooth) AND eruption AND mandibular AND ('crowding'/exp OR crowding)) OR (third AND ('molar'/exp OR molar) AND mandibular AND dental arch AND ('crowding'/exp OR crowding) AND ('orthodontics'/exp OR orthodontics OR 'orthodontic'/exp OR orthodontic) AND appliance) OR (third AND ('molar'/exp OR molar) AND ('incisor'/exp OR incisor) AND mandibular AND ('crowding'/exp OR crowding) AND ('orthodontics'/exp OR orthodontics OR 'orthodontic'/exp OR orthodontic) AND appliance) OR (third AND ('molar'/exp OR molar) AND ('crowding'/exp OR crowding) AND ('orthodontics'/exp OR orthodontics) AND ('recurrence'/exp OR recurrence OR 'relapse'/exp OR relapse)) Results: 43
Medline Complete (EBSCO)	TX (third molar AND crowding AND orthodontics AND recurrence) OR TX (third molar AND incisor AND mandibular AND crowding) OR TX (third molar AND mandibular AND dental arch AND crowding) OR TX (third molar AND tooth eruption AND mandibular AND crowding) OR TX (third molar AND mandibular AND dental arch AND crowding AND (orthodontics OR orthodontic appliance)) OR TX (third molar AND incisor AND mandibular AND crowding AND (orthodontics OR orthodontic appliance)) OR TX (third molar AND crowding AND orthodontics AND (recurrence OR relapse)) Results: 52
Cochrane	'third molar AND crowding AND (orthodontics OR orthodontic appliance) AND (recurrence OR relapse) in title abstract keywords or third molar AND incisor AND mandibular AND crowding in title abstract keywords or third molar AND incisor AND mandibular AND tooth eruption AND crowding in title abstract keywords or third molar AND mandibular AND dental arch AND orthodontic AND crowding in title abstract keywords or third molar AND mandibular AND orthodontics AND (recurrence OR relapse) AND dental arch in title abstract keywords in Trials' Results: 2
Controlled-Trials	(third molar AND crowding AND orthodontics) OR (third molar AND incisor AND crowding AND relapse) Results: 0
Open Rey	(third molar AND crowding AND orthodontics) OR (third molar AND incisor AND crowding AND relapse) Results: 0

to be a great controversy [7]. Richardson [8] affirmed that the relation of the third molars as a cause of mandibular incisor crowding is arguable, but it is not possible to affirm definitively that the third molars exert some influence on this process [9].

Therefore, the aim of the present systematic review was to seek scientific evidence that supports the causality between the presence of third molars and recurrence of crowding of mandibular incisors after orthodontic treatment, seeing that this is a frequent problem in the quest for long-term stability of occlusion.

## 2. Materials and methods

### 2.1. Focused question

The goal of this systematic review was to answer the following focused question: is there a body of scientific evidence that relates that the presence of third molars exerts some influence on the recurrence of crowding of the mandibular incisors after orthodontic treatment?

### 2.2. Search strategy

A search was conducted in the Scopus, PubMed, Web of Science, Embase, Cochrane, and Gray Literature databases, with the purpose of identifying articles of a relevant nature, without limitation on

year of publication or language. It is pointed out that the search strategies were adequate according to the databases, using the following descriptors/MeSH terms: third molar, crowding, mandibular, incisor, orthodontic appliance, orthodontic, treatment, recurrence and relapse, and the following key words: wisdom teeth, anterior crowding, mandibular incisor, orthodontic treatment. The search details are presented in Table 1.

### 2.3. Eligibility criteria

The following inclusion criteria had to be met so that the articles found would be considered eligible for this systematic review: clinical studies conducted with patients undergoing orthodontic posttreatment, without limitation of sex and/or age (P), who had third molars removed (I), compared with patients who were not submitted to third molar extraction (C), with the main outcome being the crowding of mandibular incisors in the orthodontic posttreatment period (O). The articles were initially selected by reading the titles and abstracts of the articles found, and those that fulfilled the previously mentioned criteria were selected. Articles that were not related to the topic, with patients still under orthodontic treatment with a fixed appliance, those that evaluated the crowding of maxillary incisors related to maxillary third molars or with patients who did not undergo orthodontic treatment, also

Download English Version:

<https://daneshyari.com/en/article/8759517>

Download Persian Version:

<https://daneshyari.com/article/8759517>

[Daneshyari.com](https://daneshyari.com)