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[Intervention Review]

Orthodontic treatment for deep bite and retroclined upper front teeth in children

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ABSTRACT

Background

A Class II division 2 malocclusion is characterised by upper front teeth that are retroclined (tilted toward the roof of the mouth) and an increased overbite (deep overbite), which can cause oral problems and may affect appearance.

This problem can be corrected by the use of special dental braces (functional appliances) that move the upper front teeth forward and change the growth of the upper or lower jaws, or both. Most types of functional appliances are removable and this treatment approach does not usually require extraction of any permanent teeth. Additional treatment with fixed braces may be necessary to ensure the best result.

An alternative approach is to provide space for the correction of the front teeth by moving the molar teeth backwards. This is done by applying a force to the teeth from the back of the head using a head brace (headgear) and transmitting this force to part of a fixed or removable dental brace that is attached to the back teeth. The treatment may be carried out with or without extraction of permanent teeth.

If headgear use is not feasible, the back teeth may be held in place by bands connected to a fixed bar placed across the roof of the mouth or in contact with the front of the roof of the mouth. This treatment usually requires two permanent teeth to be taken out from the middle of the upper arch (one on each side).

Objectives

To establish whether orthodontic treatment that does not involve extraction of permanent teeth produces a result that is any different from no orthodontic treatment or orthodontic treatment involving extraction of permanent teeth, in children with a Class II division 2 malocclusion.

Search methods

Cochrane Oral Health's Information Specialist searched the following electronic databases: Cochrane Oral Health's Trials Register (to 13 November 2017), the Cochrane Central Register of Controlled Trials (CENTRAL) (the Cochrane Library, 2017, Issue 10),

MEDLINE Ovid (1946 to 13 November 2017), and Embase Ovid (1980 to 13 November 2017). To identify any unpublished or ongoing trials, the US National Institutes of Health Ongoing Trials Register (ClinicalTrials.gov) and the World Health Organization International Clinical Trials Registry Platform (apps.who.int/trialsearch) were searched. We also contacted international researchers who were likely to be involved in any Class II division 2 clinical trials.

Selection criteria

Randomised controlled trials (RCTs) and controlled clinical trials (CCTs) of orthodontic treatments to correct deep bite and retroclined upper front teeth in children.

Data collection and analysis

Two review authors independently screened the search results to find eligible studies, and would have extracted data and assessed the risk of bias from any included trials. We had planned to use random-effects meta-analysis; to express effect estimates as mean differences for continuous outcomes and risk ratios for dichotomous outcomes, with 95% confidence intervals; and to investigate any clinical or methodological heterogeneity.

Main results

We did not identify any RCTs or CCTs that assessed the treatment of Class II division 2 malocclusion in children.

Authors' conclusions

There is no evidence from clinical trials to recommend or discourage any type of orthodontic treatment to correct Class II division 2 malocclusion in children. This situation seems unlikely to change as trials to evaluate the best management of Class II division 2 malocclusion are challenging to design and conduct due to low prevalence, difficulties with recruitment and ethical issues with randomisation.

PLAIN LANGUAGE SUMMARY

Orthodontic treatment for deep bite and retroclined upper front teeth in children

Background

Orthodontics is concerned with growth of the jaws and face, development of the teeth, and the way teeth and jaws bite together. Ideally, the lower front teeth bite in the middle of the back surface of the upper front teeth. When the lower front teeth bite further behind the upper front teeth than ideal, this is known as a Class II malocclusion. A Class II division 2 malocclusion is characterised by upper front teeth that are retroclined (tilted toward the roof of the mouth) and an increased overbite (vertical overlap of the front teeth), which can cause oral problems and may affect appearance.

This problem can be corrected by the use of special dental braces (functional appliances) that move the upper front teeth forward and change the growth of the upper or lower jaws, or both. These braces can be removed from the mouth and this approach does not usually require removal of any permanent teeth. Additional treatment with fixed braces may be necessary to ensure the best result.

An alternative approach is to provide space for the correction of the front teeth by moving the molar teeth backwards. This is done by applying a force to the teeth from the back of the head using a head brace (headgear) and transmitting this force to part of a fixed or removable dental brace that is attached to the back teeth. The treatment may be carried out with or without extraction of permanent teeth.

If headgear use is not feasible, the back teeth may be held in place by bands connected to a fixed arch placed across the roof of the mouth or in contact with the front of the roof of the mouth. This treatment usually requires two permanent teeth to be taken out from the middle of the upper arch (one on each side).

Aim

We carried out this Cochrane Review to find out if orthodontic treatment without the removal of permanent teeth had different effects than no orthodontic treatment or orthodontic treatment involving the removal of permanent teeth, in children with a Class II division 2 malocclusion.

Method

We searched the scientific literature up to 13 November 2017 and found no relevant studies to include in this review.

Results

There are no clinical trials that evaluate whether orthodontic treatment, carried out without the removal of permanent teeth, is better or worse than no orthodontic treatment or orthodontic treatment that involves taking out permanent teeth, in children with Class II division 2 malocclusion.

Author conclusions

There is no evidence from clinical trials to recommend or discourage any type of orthodontic treatment to correct the teeth of children whose bite is deep and whose upper front teeth are tilted towards the roof of the mouth. It seems unlikely that trials will be carried out to evaluate this treatment as they are challenging to design and conduct.