INPLASY PROTOCOL

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INFLUENCE OF GEOMETRY RELATED PARAMETERS ON THE PRIMARY STABILITY OF MINI-IMPLANTS – A SYSTEMATIC REVIEW

Singh, S[1]; Sahoo, N[2].

Review question / Objective: What is the effect and how success rate and characteristics related to geometry influence the clinical performance of mini-implants?
Objective: The purpose of this review is to explore how the mini-implant geometry influences the success rate and stability of mini-implants (MIs). Clinical studies with patients who had received MIs were required as part of the eligibility requirements.

Condition being studied: The use of mini-implants in clinical orthodontics has rendered an approach to the issue of absolute anchorage possible, in addition to facilitating the movement of teeth in a manner that is both more effective and diversified. The stability of the mini implant (MI) is a significant component that determines the clinical effectiveness of orthodontic therapy; this factor is dependent on a wide variety of other parameters.

INTRODUCTION

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absolute anchorage possible, in addition to facilitating the movement of teeth in a manner that is both more effective and diversified.The stability of the mini implant (MI) is a significant component that determines the clinical effectiveness of orthodontic therapy; this factor is dependent on a wide variety of other parameters.

METHODS

Participant or population: Participant or population: patients of both sexes, without restrictions on age, ethnicity, or socio - economic status group, and whose orthodontic treatment with fixed orthodontic appliances required skeletal anchorage reinforcement were included.

Intervention: The orthodontic MIs with a diameter of less than 2.5 millimetres were inserted into the patient as part of the intervention. This was done to provide skeletal anchoring.

Comparator: The various geometrical properties of orthodontic MIs were actively compared by subgroup analysis. These variables were analysed in isolation or in connection to the insertion site (maxilla or mandible).

Study designs to be included: Study designs to be included: eligible studies comprised randomised controlled trials (RCTs) and non-randomized clinical investigations, both prospective and retrospective. Animal and laboratory research, as well as case reports, opinion articles, and review articles were not considered eligible.

Eligibility criteria: Eligibility criteria for the study will include clinical studies with patients who had received MIs for orthodontic anchorage, as well as data on the size, shape, thread design, insertion site, and stability of the MIs. Randomized controlled trials (RCTs) and non-randomized clinical investigations, both prospective and retrospective, will be eligible. Animal and laboratory research, as well as case reports, opinion articles, and

review articles will not be considered eligible.

Information sources: This systematic review will be carried out in compliance with the PRISMA declaration. The following search engines will be used: PubMed, PubMed Central, and Ebsco.

Main outcome(s): Main outcome(s): Primary stability refers to the stability that is measured right after the implantation operation has been completed. Studies that documented the appropriate assessment procedure for assessing the stability of MIs were considered for inclusion. Success rate will be recorded. Two time frames, ranging from 6 to 12 months and more than 12 months, were taken into consideration in order to assess the impact that the follow-up duration had on stability.

Quality assessment / Risk of bias analysis: Quality assessment / Risk of bias analysis: The Newcastle-Ottawa Scale (NOS), which consists of selection, outcome, and comparability, will be used to evaluate the quality of each study that will be eligible for inclusion in the review. Scores ranged from 0 to 9. A study that had a NOS-Score of 6 will be regarded as being of high quality. The issue of extraction consensus will be handled through conversation, and if necessary, with the assistance of two additional researchers (xx,zz).

Strategy of data synthesis: Strategy of data synthesis: The success rate of mini implants will be evaluated in this study, and statistical characteristics were analysed using meta-analysis. With the help of the MetaXL (v.5.0) software, the success rate of mini implant strength was determined. During the process of metanalysis, you can implement the inverse variance heterogeneity model with the help of this free "add-in" tool for Microsoft Excel that can be downloaded from the website https://epigear.com. Cochran's Q and I2 statistics were used to evaluate the level of heterogeneity present in the data.

Subgroup analysis: Subgroup analysis: Separate analyses of the data from each subgroup were carried out for the design, the shape, and the follow up.

Sensitivity analysis: Sensitivity analysis was performed to explore the source and size of heterogeneity among studies when necessary.

Country(ies) involved: India.

Keywords: The following keywords were used in the search: ("mini-implant" OR "miniscrew" OR "TAD" OR "temporary anchorage device" OR "skeletal anchorage").

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