

Analysis of studies about ankylosis and their possible treatments

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Ankylosis is a dental abnormality characterized by the union of bone and cementum in the tooth. It is postulated that foremost causes of tooth ankylosis include: genetic inheritance, possible excessive pressure and trauma, or a disturbed metabolism. Experts cannot confidently identify which plays the largest role despite there being a plethora of research regarding tooth ankylosis. Tooth ankylosis is an important dental abnormality to discuss because of the problems it causes to patients. As an abnormality, it occurs more frequently on deciduous teeth; however, it does also occur, but less frequently on permanent teeth. Thus, as professionals it is imperative to be able to understand, diagnose, and treat an abnormality like this to arrest any chances of potential threats to the occlusion. It is dually important to note that there are different treatment protocols for different patients and this is something that is taken in account in this paper.

Long-term follow up of 103 ankylosed permanent incisors surgically treated with decoronation - a retrospective cohort study

This study was conducted at the Eastmaninstitutet Department of Pediatric Dentistry by dental professionals. The focus of this study is to analyze and evaluate the efficacy of the decoronation technique in treating ankylosed permanent incisors. Thus, there is a specificity regarding this research study to individuals with ankylosed permanent incisors and the conclusions from this study should be taken in account to the participant classification.

Malmgren et al. (2015) states that the decoronation technique began in 1984 and is characterized by removing the crown and root filling and allowing the root to remain in situ to be resorbed. This is a technique largely used to treat

ankylosed permanent incisors. The methodology of this experiment was conducted in retrospect where young children and teenagers received the treatment and had a follow up with the dentist a few years later. This is a useful methodology because it allows the researchers to analyze if their interventions worked for the long-term period. In the study, 95 patients were treated and then followed up a few years later. The patients were classified and boys and girls between the ages of 10 and 15. These classifications are important as they were important predictors of successful intervention for the future. Some important materials which were used for the intervention were the utilization of radiographs and x-rays to determine the severity of alveolar bone growth prior and following the procedure. This is important because this technique allowed the researcher to make judgements about whether their procedures have halted the bone growth and whether an implant would be irritated by subsequent alveolar bone growth.

Additionally, Malmgren et al. (2015) utilized a three-point scoring structure to judge whether bone growth increased or decreased. A score of one indicated unchanged or reduced bone growth, a two indicated a slight increase in bone growth, and a three indicated a considerable increase in growth. Subsequently, these rankings were used to compile results. As noted earlier, it was stated that gender and age were significant predictors for the success of the procedure. Malmgren et al. states that there are two significant results of this retrospective study.

The first is that the research showed that decoronations that were performed after the age of 16 results in little bone growth, which is beneficial for the

patients because it ensures a favorable condition for the alveolar ridge. However, it was observed that girls at a mean age of 13 years old had increased bone growth which indicated that girls should receive the treatment if possible before the age of 13. Receiving this treatment earlier could prevent this regrowth of bone which ensures a healthy alveolar ridge for future implantation.

Relocation of Infrapositioned Ankylosed Teeth: Description of Orthodontic Bone Stretching and Case Series

This study was performed at the Montpellier University Hospital in France by dental professionals. The focus of this study was to evaluate the efficacy of the bone-stretching technique in the treatment of ankylosed teeth. This is a valuable study to mention because it differs from the previous that it involves only “ partial osteotomies, without the mobilization or reposition of the alveolar segment”. This means there is only a minimal use of the cutting or removal of bone. Instead this “ bone-stretching technique,” is utilized to encourage tooth movement to the correct plane and axis. It is often used when the tooth is not extremely ankylosed. It is important to note that this study was conducted on a much smaller scale in comparison to the previous one therefore the results should be taken with modesty. The methodology of this experiment was of a simpler nature with 3 descriptive case studies of two boys and one girl aged 15, 17, and 12, respectively. Majority of the patients possessed injuries of the periodontal ligament which often leads to the ankylosis phenomenon.

Bousquet et al. (2016) describes a presurgical preparation and surgical procedure in the methodology of this research. In the presurgical preparation, different preventative measures were taken such as prepping and checking for severely ankylosed teeth which might require an extraction instead of this bone-stretching method. Significant materials were used within this experiment for the bone-stretching technique. There are a variety of slight incisures around the ankylosed tooth which are used to help reposition the plane and axis of the tooth. Then an orthodontic traction apparatus is constructed and the patient's surgery is primarily finished. The researchers concluded that the orthodontic bone stretching technique is a very viable one for less severe cases of ankylosed teeth because it is less traumatic because large scale cutting or removal of bone is circumvented. Bousquet et al. states, " The OBS technique is a viable procedure for the treatment of ankylosed teeth. This surgical procedure seems to facilitate tooth positioning in 3 dimensions".

Furthermore, all three patients who participated in the study were reported as having successful outcomes after a period of a year. Thus, it shows that ankylosed teeth can be treated with alternative strategies when applicable to the patient.