Chapter 7

SURGICALLY ASSISTED RAPID MAXILLARY EXPANSION

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INTRODUCTION

While the skeletal problem is resolved with apparatus which provide maxillary and midpalatal sutural expansion in growing patients, this procedure is not successful in skeletally matured patient. Therefore surgically assisted rapid maxillary expansion (SARME) is suggested to reduce the circummaxillary sutural resistance to correct maxillary width deficiencies.

The aim of this review was to evaluate effects of surgically assisted rapid maxillary expansion treatment in orthodontics. In this review, we will point out the description of RME, indication, history, advantages and complications, go about the methods of procedure and deal with the differences from RME.

Surgically assisted rapid maxillary expansion

Rapid maxillary expansion (RME) is the procedure of opening the midpalatal suture by applying force on the tooth and/or palatal mucosa in lateral direction that exceeds the limitations of tooth movement. RME plays an important role in dentofacial therapy in bringing the maxilla displaying transversal stenosis to its ideal size. Transversal growth restriction of the maxilla may occur due to genetic or environmental reasons. One of the most common causes of this is seen in individuals with oral respiration, where the tongue is positioned on the floor of the mouth, causing the buccinator mechanism to deteriorate and buccinator muscles to form stenosis in the maxilla (2). SARME shows clinical success in patients with complete growth by providing a visible expansion; however, this treatment option fails to eliminate tipping and extrusion movement in anchored teeth (3). Compared to surgical options, expansion of the maxilla is an unstable process. In order to increase the stability, surgically assisted RME is promoted over RME.

History of surgically assisted rapid maxillary expansion

Since Angell's (5) first case where he performed maxillary correction in transverse deficiency, various surgical procedures have been suggested. The term

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Retention, stability and relapse

Most articles in the literature argue that SARME is more stable than RME (29 ,43, 23, 21). Some authors are of the opinion that retention is not necessary after SARME and that orthodontists can start orthodontic treatment without any waiting time (23), while some others recommend a period of retention ranging from 2 to 12 months after expansion (21). In SARME, the relapse rates vary between 5-25%. Considering the fact that relapse can be as high as 63% in RME, these rates can be considered quite low. The reason for such high rate of relapse in RME is associated with its application on patients with advanced skeletal development. RME is an unstable procedure in patients with advanced age (29). Most studies argued that relapse in SARME is a condition that should be taken into consideration by clinicians, yet reported a low incidence of relapse (44).

Conclusion

SARME is a good treatment alternative in adult patients who have completed their growth and development, and are not eligible for RME. Used in correction of transversal deficiencies, this technique is considered as a clinically effective and stable approach. Compared to RME, SARME maintains periodontal health, decreases the risk of resorption in the roots and increases the long-term stability.

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