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Incidence Of Postoperative Bone Exposure In Patients Who Have Undergone Lefort 1 Osteotomy With Anterior Maxillary Osteotomy

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Abstract :
Introduction : The LeFort I osteotomy is one of the most commonly used procedures to correct mid-face deformities. It allows for correction in three dimensions including advancement, retrusion, elongation, and shortening.The anterior maxillary osteotomy (AMO) is employed primarily to reposition the anterior dento-osseous segment posteriorly. It is also used to move the segment superiorly or inferiorly as indicated. The basic indication for the anterior maxillary osteotomy is severe protrusion of maxillary incisors in an adult patient with completed facial growth. Another indication may be a mandibular retrusion in an adult patient; this often can be improved by surgery in the anterior maxilla. The aim of the study was to analyse the incidence of postoperative bone exposure in patients who underwent Lefort 1 osteotomy with Anterior maxillary osteotomy.
Materials And Methods : Data collection of patients who had undergone Lefort 1 osteotomy with Anterior maxillary osteotomy was done from Dental Information Archive Software (DIAS) of Saveetha Dental college from January 2019 to February 2021. Among those cases , the incidence of postoperative bone exposure cases were segregated separately and statistically analysed .
Results : Among the total of 7 Lefort 1 osteotomy with maxillary anterior osteotomy , Post operative bone exposure was reported in 2 cases .
Conclusion : Multi segmented Lefort 1 Osteotomy is relatively a safe procedure as maxilla has adequate blood supply from other vessels ie., Ascending pharyngeal artery and ascending palatine artery . Even then soft tissue handling is of utmost importance.

Keywords : Bone exposure ; Complication ;Innovative method ; Lefort I ; Osteotomy ; Post operative

Introduction :
Dentofacial abnormalities afflict about 20% of the population, resulting in varying degrees of functional and aesthetic impairment. 1 Orthognathic surgery comprising mobilisation, repositioning, and fixation of the maxilla and mandible is required to correct these abnormalities.Orthognathic surgery procedures are frequently used to correct skeletal angle class II and III deformities, dentomaxillofacial deformities, mandibular laterognathia, and maxillofacial asymmetries [1–3].One of the most popular treatments for correcting midface abnormalities is the LeFort I osteotomy. Advancement, retrusion, elongation, and shortening are all possible corrections in three dimensions[4].
The anterior maxillary osteotomy (AMO) is used to move the anterior dento-osseous segment to the back of the mouth. It can also be used to relocate the segment to the right or left as needed. The most common reason for an anterior maxillary osteotomy is excessive maxillary incisor protrusion in an adult with finished facial growth[5]. A mandibular retrusion in an adult patient is another possibility; this is often addressed by surgery in the anterior maxilla.

As with any surgical procedure, various preoperative, intraoperative, and postoperative complications may occur.Several postoperative consequences of orthognathic surgery have been described, some of which have resulted in serious issues. The majority of these issues can be handled with good treatment and a thorough understanding of their causes[6].

Patients experience intraoperative complications such as inadequate osteotomy, bleeding due to vascular injuries, nerve exposure and damage, dental injuries, and soft tissue injuries, as well as postoperative complications such as paresthesia due to nerve injuries, dyspnea, cervical pain, gastrointestinal diseases, infections, and soft tissue injuries, according to Kim et al.2. Following orthognathic surgery, postoperative problems such as open bite, infections, soft tissue exposure, TMD, and recurrence have been observed by Ahn et al.3.

Our team has extensive knowledge and research experience that has translated into high quality publications. [7–26] The aim of the study was to analyse the incidence of postoperative bone exposure in patients who underwent Lefort 1 osteotomy with Anterior maxillary osteotomy.

Materials And Methods :

This is a retrospective review of all orthognathic surgery conducted at Saveetha Dental College's Department of Oral and Maxillofacial Surgery. Each patient's specific medical record was acquired, and each case file was thoroughly examined. Gender, age at the time of surgery, exact orthognathic procedure performed, surgery duration, and post-operative problems were all noted. The outpatient review records and daily clinical management notes from the patient's hospital stay were reviewed.

All patients who experienced a complication during the postoperative phase or later follow-up were recorded. Postoperative complications included both orthognathic surgery-related (with the exception of postoperative relapse and nerve dysfunction) and non-orthognathic surgery-related (with the exception of postoperative relapse and nerve dysfunction). For each patient who had a postoperative complication, complete information on the nature, onset, duration, management, and outcome of the complication was obtained. The data of incidence of postoperative bone exposure in patients undergone Lefort 1 osteotomy with maxillary anterior osteotomy were collected . The data were transferred to MS excel . The data were imported to SPSS Software and statistically analysed.

Results :

The total orthognathic surgeries with Lefore 1 osteotomy with Anterior maxillary osteotomy were reviewed.

A total of 7 Lefort 1 osteotomy with Maxillary anterior osteotomy were done .

In that , 3 patients were Female and 4 patients were Male.

Among the total of 7 Lefort 1 osteotomy with maxillary anterior osteotomy , Post operative bone exposure was reported in 2 cases .

Discussion :

The incidence of postoperative bone exposure in patients who underwent Lefort 1 osteotomy with maxillary anterior osteotomy is very minimal[27] . Patients with major anatomical irregularities should be informed about an enhanced risk of Lefort 1 osteotomy. Preoperative planning avoiding transversal segmentation or extensive dislocations of the maxilla should reduce the occurrence of complications. For healthy individuals, the risk of complications with the Lefort I osteotomy is considered low[28].

Patients with segmental LeFort 1 osteotomies or anterior movements greater than 9 mm are at a higher risk for complications. Careful preoperative planning and appropriate preoperative consultation should be followed in these specific situations. Efforts to minimize maxillary movement (e.g., with two-jaw surgery) are recommended to reduce complications [29].

Orthognathic surgical techniques are connected with a wide range of potential problems. Regardless, complications are possible following any operation, and surgeons are responsible for reducing the risk of complications [30]. To increase the safety of orthognathic surgery treatments, oral and maxillofacial surgeons, orthodontists, and the operating team must prevent such complications during the preoperative, intraoperative, and postoperative periods. It is imperative that surgical technique, orthodontic treatment approaches, and experience all continue to improve. Despite the fact that we found several papers describing orthognathic surgery complications throughout our search, the bulk of the studies we found were case reports, case series, or reviews [31]. Currently, these types of studies do not provide trustworthy evidence. Furthermore, only three studies were found to have a low risk of bias after critical assessment of all included RCTs and CCTs. To produce improved evidence in this discipline, more high-quality RCTs and CCTs are required.

Conclusion :

Multi segmented Lefort 1 Osteotomy is relatively a safe procedure as maxilla has adequate blood supply from other vessels ie., Ascending pharyngeal artery and ascending palatine artery . Even then soft tissue handling is of utmost importance to prevent postoperative complications.

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Author Contribution:

All the authors contributed equally to the study

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Conflict Of Interest :

The author have no conflict of interest

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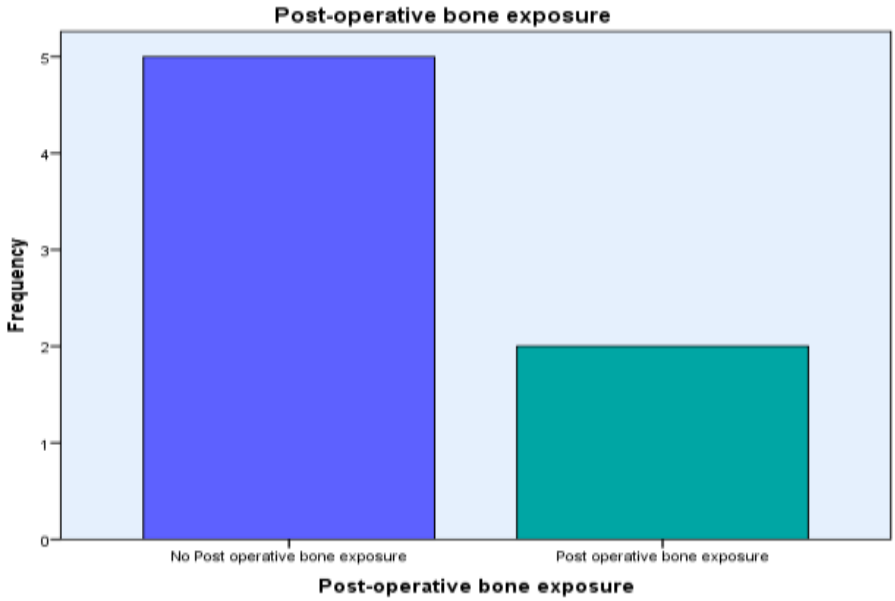

Figure 1 : The bar graphs represent the incidence of postoperative bone exposure in patients underwent Lefort 1 Osteotomy with Anterior maxillary osteotomy . The vertical axis represents the No. of cases and the horizontal axis represents the incidence of postoperative bone exposure.