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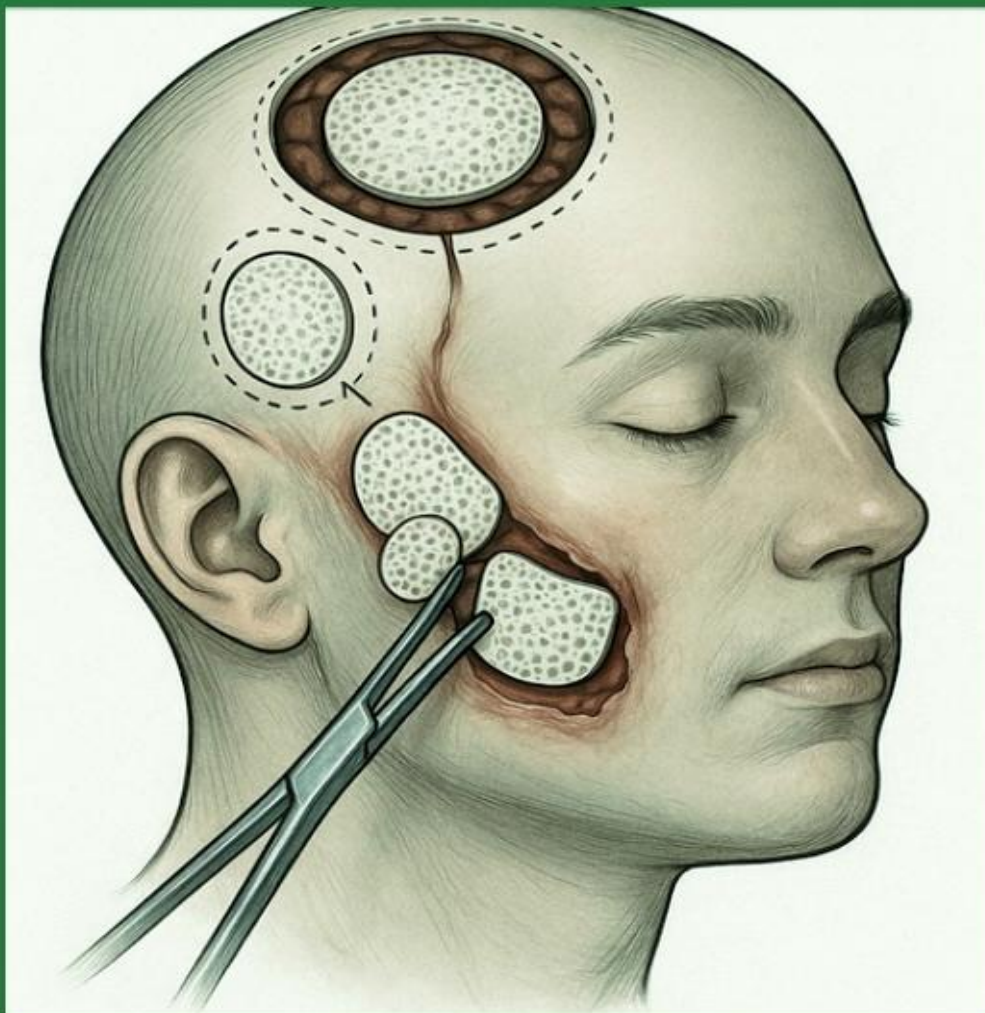
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EVALUATION OF IMPLANT SURVIVAL IN ATROPHIC JAWS
RECONSTRUCTED WITH CALVARIAL BONE GRAFT, PEREIRA ET AL. 2025



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Evaluation of the knowledge of Dental Surgeons regarding premalignant lesions

AVALIAÇÃO DO CONHECIMENTO DOS CIRURGIÕES DENTISTAS FRENTE A LESÕES PRÉ-MALIGNAS

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ABSTRACT

Oral cancer represents 3% of cancer cases in the world, approximately 650,000 people a year are diagnosed with head and neck cancer. It is estimated that in 2030 there will be around 27 million people. Thus, this study aims to evaluate the knowledge of dentists in the Campo Limpo region, if they are able to treat their patients. After evaluating, 90% of respondents are not prepared to detect oral cancer, it was observed that it is necessary to train dentists to detect pre and malignant diseases of the oral cavity.

Palavras chave: Cancer; Odontologia; Cavidade Oral

Keywords: Cancer; Dentistry; Oral cavity

INTRODUCTION

The professional trained in Dentistry, known as a dental surgeon, is responsible for the prevention and treatment of diseases of the stomatognathic system, which consists of the mouth, jaw, facial bones, as well as other structures associated with these parts of the human body, that is, the dentist in general is responsible for assessing the patient's situation and offering the best possible treatment. Premalignant condition or precancerous neoplasm is an injury or tumor that causes multiplication of abnormal cells with an increased risk of developing some cancer, are tissue changes that can assume the character of a malignant tumor at any time, but, on the other hand, can remain stable for a considerable period of time¹.

Leukoplakia is a clinical term used to describe a predominantly white plaque of the oral mucosa, not removable by

scraping, which cannot be clinically classified as any other entity. Its surface may be smooth or rough, being the most frequent precursor lesion in the mouth. It mainly affects the buccal mucosa and the labial commissures, followed by the alveolar mucosa, tongue, lip, hard palate, soft palate, floor of the mouth and gums².

The causes of injuries are usually associated with smoking, and we are not necessarily talking only about cigarettes, we can mention tobacco, chewing tobacco, cigars, pipes, hookah and the popular electronic cigarette, that is, the greater the number of cigarettes smoked, the greater the risk of cancer; consumption of alcoholic beverages, exposure to the sun without protection; excess body fat and oral hygiene are also factors that cause lesions. The signs to observe are wounds in the oral cavity or on the lips that do not heal for more than 15 days, red or whitish spots on the tongue, gums, roof of the mouth or cheeks¹⁻⁴.

In more advanced cases, the difficulty chewing, swallowing, speaking and great difficulty moving the tongue. Keep an eye out for these signs and the change in color of your mouth. The disease has a higher incidence in men between 55 and 60 years of age, white and with a low level of education. Oral cancer can be detected in the early stages of the disease, which allows for more effective treatment and cure. Unfortunately, despite the ease of examination of the oral cavity, many cases of oral cancer are diagnosed in advanced stages. It is necessary to be aware of any change in the mouth and if you notice anything out of the ordinary, seek a dentist or doctor. When a suspicious lesion is identified, a biopsy must be performed^{1,5,6,7}.

This procedure can be done on an outpatient basis, with local anesthesia, by a trained professional. Some imaging tests, such as computed tomography, also help in the diagnosis and, mainly,

help to assess the extent of the tumor. Very early lesions can be evaluated without the need for imaging tests at first. The initial diagnosis allows treatment with better functional results, and if cancer is confirmed, the patient must be referred for treatment, which in most cases is surgical. Surgery usually consists of removing the area affected by the tumor, in the simplest lesions.

In more complex cases, in addition to surgical treatment, it is necessary to perform radiotherapy to complement the treatment and obtain a better curative result. The Head and Neck surgeon is the professional who will assess the stage of the disease. This evaluation, associated with complementary exams, will determine the most indicated treatment, the interdisciplinary aspect is important (with the participation of several health professionals) in order to prevent complications and sequelae. Squamous cell carcinoma (SCC) of the head and

neck with involvement of anatomical sites of the upper aerodigestive tract represents the third most common cause of death caused by cancer in the world⁸⁻¹⁰.

An estimated 11,180 new cases of the disease in men and 4,010 in women for each year of the triennium 2020-20221. From this, in the daily routine of dental offices, the care of this patient should be a routine. As this is a specialized and delicate area, the dentist must not only know about dental indications, but also about the process of cancer diagnosis, staging and planning of oncotherapy¹⁻⁶.

All of this content is not provided in undergraduate courses in Dentistry or in most postgraduate courses. With a flaw in the construction process of dentists' education, assistance to cancer patients becomes limited, since dental professionals do not have the necessary knowledge to deal with delicate situations

during the treatment of a serious pathology such as cancer.

OBJECTIVES

This work aims to understand the knowledge of dentists in the region of Campo Limpo Paulista, São Paulo State. About pre-malignant lesions in the oral cavity, understand what behavior they practice, if they are able to treat and diagnose in their office.

METHOD

A qualitative research was carried out in order to know if the dentist feels able to treat an orofacial lesion. Eight dentists working in the Campo Limpo Paulista region were selected to participate in the research. The base questionnaire contained training, type of specialty or residency, and whether the professional felt capable of diagnosing and treating a pre-malignant lesion.

RESULTS AND DISCUSSION

Among all types of cancer, oral cancer is the seventh most frequent malignant neoplasm in the Brazilian population, representing about 3% of the total³⁻⁵. Most cases of oral cancer are detected at an advanced stage and have the highest mortality rate among head and neck cancers. This reality may be associated with the absence of symptoms, particularly pain, at this stage, or the failure of dentists to carry out a detailed clinical examination of the oral cavity in routine appointments¹⁻⁶. In our study, we interviewed 8 (eight) dentists from the Campo Limpo Paulista region, where we asked some questions to assess their conduct. Therefore, the dental surgeon is able to treat an orofacial lesion.

Of the eight surgeons, five of the interviewees reported not knowing how to make a diagnosis of oral cancer, two reported being able to observe a change in the oral cavity, requiring referral to a doctor to conduct the diagnosis, and only

1 surgeon said he knew how to make the diagnosis in stages advanced. "A lesion on the tongue, lesion on the palate, on the floor of the mouth, you can detect it, but I think it has to be a little advanced" said the surgeon.

Of the interviewees, we have the following specialties: Oral and Maxillofacial Surgery, Implant Dentistry, Stomatology, Pathology, Health Management, Periodontics, Family Health and General Practice. And of the 8 interviewees, only one has a specialty and knows other professionals who work in this area, the other surgeons do not know any "colleague" from work, with a specialty in stomatology, and end up advising the patient to seek a doctor, devaluing the profession.

Most dentists have little scientific knowledge to care for patients with cancer. One of the factors that, according to the authors, is associated is the deficiency in the training of

undergraduate and graduate students³.

There is a lack of knowledge and training on the part of both the medical team and dentists without specific guidance on how to perform an adjuvant protocol to antineoplastic treatment to prevent oral complications.

However, the Ministry of Education and Culture does not make it mandatory to include the discipline Oncology in its curriculum, entering as an optional topic in special patients or even in Stomatology. In addition, there are few oncology treatment centers with experienced dentists integrated into their multidisciplinary team¹⁻⁸.

In addition, according to them, there is also a difficulty in finding this type of professional in private clinics to provide a service to the oncology community. In one study, it was also observed that only 35% of patients being treated for cancer in the Head and Neck region had follow-up with the dentist. Due to this

devaluation in the market, many end up not studying the subject. According to the British Association of Head and Neck Oncologists, there is a need to implement specialists with training and experience to promote effective oral care in cancer patients, since it is a delicate treatment with several complications in the life of the patient and family⁵⁻⁸.

a specialized reference service, since oncological treatment is very delicate, requiring closer monitoring by professionals.

CONCLUSION

Thus, after evaluating the results, we can conclude that despite the great importance of the insertion of the dental surgeon in the multidisciplinary oncology team, this is still limited, especially due to the restriction of knowledge of dentistry professionals. The number of cancer cases has been growing in Brazil, and with the increase in the population and increase in life expectancy, this number will grow even more. Due to this, there will be a need to qualify professionals for

REFERENCE

1. INCA, Câncer de Boca. 02-05-may 2022.
<<https://www.inca.gov.br/assuntos/cancer-de-boca>>
2. SCIELO, Câncer Oral, 14-03-marc 2022.
<<https://www.scielo.br/j/cads/c/a/8tftpDdZRzsmjkySfmSV/Pgt/?lang=pt>>
3. SCIELO, Oral cancer, 22-06-jun 2022.
<<https://www.scielo.br/j/ram/b/a/bzBgX5jfrxz6gDNX7KdC9jM/?lang=en>>
4. SCIELO, Epidemiology of Cancer, 27-02-feb 2022.
<<https://www.scielo.br/j/rbepi/d/a/FhV9yH8rF9sXyHttrzdzSpj/?lang=en>>
5. SCIELO, Cancer, 17-02-feb 2023.
<http://old.scielo.br/scielo.php?pid=S1808-86942013000200018&script=sci_arttext&tlng=pt>
6. INCA, Números do Câncer, 22-06-jun 2022.
<<https://www.inca.gov.br/numeros-de-cancer>>
7. INCA, Campanhas, 16-07-jul 2022.
<<https://www.inca.gov.br/campanhas/cancer-de-boca/2020/semana-nacional-de-prevencao-do-cancer-bucal>>

8. Repositório UFPB, 21-03-feb 2022.
<https://repositorio.ufpb.br/jspui/handle/123456789/13187?locale=pt_BR>
9. INCA, Dados Brasil, 18-02-Feb 2022.
<<https://www.inca.gov.br/sites/ufu.sti.inca.local/files/medias/document/livro-abc-3-edicao.pdf>>
10. BVSALUD, SUS data, 19-06-jun 2022.
<<https://docs.bvsalud.org/biblioref/collecciona-sus/2013/30583/30583-552.pdf>>

ATROPHIC JAWS RECONSTRUCTED WITH CALVARIAL BONE GRAFT

AVALIAÇÃO DA SOBREVIDA DE IMPLANTES EM MAXILAS ATRÓFICAS RECONSTRUÍDAS COM ENXERTO DE CALOTA CRANIANA

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RESUMO

Objetivo: O objetivo no estudo foi analisar as taxas de sobrevida de implantes instalados em maxilas atróficas reconstruídas com enxerto de calota craniana. **Material e métodos:** Estudo retrospectivo que avaliou a taxa de sobrevivência de implantes, através da coleta de dados de prontuário, incluindo variáveis como a idade e o gênero, o tipo de reconstrução realizada, o número e a plataforma dos implantes instalados, o tipo de perda dos implantes, a região da perda, bem como o tempo de seguimento clínico, através da análise descritiva e exploratória dos dados. A sequência de remoção, manejo e estabilização do enxerto de calota craniana, além da instalação dos implantes e preparo protético seguiu padrões rotineiros e parâmetros estabelecidos na literatura. **Resultados:** A reconstrução de maxilas atróficas com enxerto autógeno de calota craniana proporcionou altas taxas de sobrevida de implantes dentários, mostrando-se previsível. Dos 15 pacientes analisados, 13 (86,7%) obtiveram

sobrevida de todos os implantes, havendo apenas dois casos de perdas precoces de implantes dentários, caracterizando que para o total de 95 implantes dentários instalados nas maxilas reconstruídas, a taxa de sobrevida foi de 97,9%. Conclusão: O osso de calota craniana como área doadora para reconstruções, previamente à instalação de implantes representa, portanto, ótima alternativa, permitindo a correção das deficiências ósseas e proporcionando estabilidade e manutenção do volume ósseo, com resultados satisfatórios quanto à sobrevida dos implantes e baixas taxas de falhas.

Palavras chave: Calota craniana, Maxilas atroficas, Implantes.

ABSTRACT

Objective: The aim of this study was to analyze the survival rates of installed implants in atrophic maxillae reconstructed with calvarial bone graft. **Materials and methods:** Retrospective study that evaluated the survival rate of implants, through the collection of data from medical records, including variables such as age and gender, type of reconstruction performed, number and platform of the installed implants, type of implant loss, the region of loss, as well as the time of clinical follow-up, through descriptive and exploratory data analysis. The sequence of removal, handling and stabilization of the calvarial bone graft, in addition to the installation of implants and prosthetic preparation followed routine standards and parameters established in the literature. **Results:** The reconstruction of atrophic maxillae with autogenous calvarial bone graft provided high survival rates for dental implants, proving to be predictable. Of the 15 patients analyzed, 13 (86.7%) had survival of all implants, with only two cases of early loss of dental implants, showing that for a total of 95 dental implants installed in the reconstructed jaws, the survival rate was 97.9%. **Conclusion:** The calvarial bone as a donor area for reconstructions, prior to the installation of implants, therefore represents a great alternative, allowing the correction of bone deficiencies and providing stability and maintenance of bone volume, with satisfactory results regarding implant survival and low failure rates.

Keywords: Calvarial Bone, Atrophic Jaws, Implant.

INTRODUCTION

The clinical consequence of tooth loss is continuous bone resorption.²³ Edentulous patients who have sufficient residual alveolar bone can be predictably rehabilitated with dental implants¹⁷, presenting stable and reliable long-term results for implant survival¹, however requiring techniques for maxillary bone reconstruction.²²

In cases of severe atrophy of the jaws, poor quality and quantity of bone tissue may compromise osseointegration of the implant, especially in the posterior region, requiring more elaborate rehabilitation strategies¹⁰. Autogenous bone is considered the “gold standard” for reconstructive procedures¹³, due to its better potential for revascularization¹¹.

For extensive bone reconstructions, the most common autogenous bone donor areas are the iliac crest⁷, tibia¹², fibula⁷, and calvaria¹⁴, with a low rate of remodeling during the incorporation process²⁰. The surgeon's choice of the donor area should consider the nature of the reconstruction requirements and volume.¹⁸

Calvarial bone grafts represent an alternative donor area, with a low incidence of complications, minimal postoperative morbidity at the donor site¹⁵ and relatively painless recovery.¹⁸ They have high retention rates, attributed to factors such as embryology, early revascularization, and inherent architecture.²¹ They represent a reliable donor area for alveolar crest reconstruction,²⁵ and are associated with lower rates of resorption.¹⁵

Therefore, the present study aimed to analyze survival rates of implants installed in atrophic maxillae reconstructed with calvarial bone graft (associated or not with Le Fort I Osteotomy).

MATERIAL AND METHODS

4.1. Study design

A retrospective observational study was carried out by collecting data from medical records in accordance with the STROBE Declaration in totally edentulous atrophic maxillae of 15 patients who underwent maxillary alveolar reconstruction with the calvarial bone, in a follow-up period of 3 to 54 months after prosthetic loading of implants, between February 2014 and September 2018 by the same experienced oral and maxillofacial surgeon qualified to perform maxillary reconstruction and

implant installation, and who received fixed prosthetic rehabilitation on upper implants until November 2019.

As criteria for inclusion of patients in the sample of this study, the following were obtained: complete and legible medical records, not giving up treatment at any stage, not having medical conditions that contraindicate surgical procedures, not having undergone head and neck radiotherapy, having total superior edentulism, having preoperative cone beam computed tomography, having bone atrophy of the maxillary alveolar ridge in the anterior and posterior regions classified as Class IV, V or VI by Cawood & Howell (1988).⁵ Patients excluded from the study were: patients with contraindications for the installation of dental implants, children, patients who did not agree to participate in the study and/or who did not sign the informed consent form.

4.2 Treatment protocols

4.2.1 Reconstruction with skullcap bone graft

Reconstruction with calvarial bone graft blocks (onlay), for thickness gain, associated or not with Le Fort I osteotomy, in addition to particulate graft (inlay) in maxillary sinuses for height gain, was performed in order to restore maxillary bone defects, in accordance with the classification of alveolar ridge atrophy. The chosen area for removal of the calvarial bone graft was the parietal bone on the right side with removal of partial-thickness blocks (external cortical bone only). All patients were treated following a similar protocol. Maxillary reconstruction surgeries were performed in a hospital environment, under general anesthesia and nasotracheal intubation, followed by

standardized preparation of the selected donor area.

4.2.2 Installation of dental implants

Seven to twelve months after the reconstructive surgery, a new cone-beam computed tomography scan was requested to assess the post-reconstruction maxillary bone volume, its remodeling rate and the incorporation of the graft blocks in the recipient bed. We proceeded to the installation of dental implants. All grafts were checked for stability and incorporation into the recipient bed. The success of the grafts was evaluated using the criteria proposed by Barone & Covani (2007), evaluating: absence of block exposure, absence of postoperative infection, presence of the graft incorporation into the bed, absence of bone radiolucency, presence of bone graft bleeding after removal of

stabilization screws and possibility of implant placement.

The implants were inserted according to a cortical bone drilling protocol. Six to eight implants were installed in the reconstructed maxillae, from external or internal hexagon platforms, so that the implant platform was leveled with the alveolar crest. The installation torque varied between 25-50N, that is, all implants were inserted with satisfactory primary stability, the sutures remained in place for a minimum period of seven days and the patients did not use their prostheses during this period.

4.2.3 Prosthetic rehabilitation with fixed upper prostheses

Oral rehabilitation was based on fixed upper implant-supported prosthesis, in conventional or late prosthetic loading, with a minimum time of 3 months between the surgery to install

the implants and the reopening, with a bar joining all the implants with the prosthetic system. Clinical follow-up consultations took place weekly in the first month and every three months during the first year, with half-yearly and annual radiographs in subsequent years. We considered surviving implants those that were functionally stable.

4.3 Statistical analysis

The data were analyzed in a descriptive and exploratory way, associating the survival or loss of the implants with the other variables. All analyses were performed using the R program.

RESULTS

In the analyzed period of 4 years (2014-2018), 95 implants were

installed in fifteen total edentulous patients with moderate to severe maxillary atrophy, 10 (66.7%) females and 5 (33.3%) males, with a mean age of 58.5 years, ranging from 40 to 73 years. As for anterior maxillary atrophy, 5 patients (33.3% of the

sample) had Class IV atrophy, 4 (26.7%) Class V and 6 (40.0%) Class VI. As for posterior maxillary atrophy, 1 patient (6.7%) had Class IV atrophy, 6 (40.0%) Class V and 8 (53.3%) Class VI.

Table 1. Characteristics of patients who had implants installed between the years 2014 to 2018, in atrophic maxillae reconstructed through grafting with calvarial bone (n=15).

Variable	Category	Frequency	Percentage
Sex	Female	10	66.7%
	Male	5	33.3%
Anterior maxillary atrophy	Class IV	5	33.3%
	Class V	4	26.7%
	Class VI	6	40.0%
Posterior maxillary atrophy	Class IV	1	6.7%
	Class V	6	40.0%
	Class VI	8	53.3%
		Mean (standard deviation)	Median (minimum and maximum value)
Age (years)		58.5 (9.5)	59.0 (40.0-73.0)

Regarding the type of reconstruction, we observed that in 40.0% of the patients, maxillary reconstruction was performed with bone from the cranial vault associated with Le Fort I osteotomy, in 53.3%, maxillary reconstruction was used with calvarial

bone associated with lifting of bilateral maxillary sinus and one patient (6.7%) underwent reconstruction with unilateral lifting. Using Barone & Covani's (2007) bone graft success criteria, all grafts

presented successful incorporation
and fulfilled the proposed criteria.⁶

Table 2. Characteristics related to implant surgeries between the years 2014 to 2018, in atrophic maxillae reconstructed through grafting with skull bone (n=15).

Variable	Category	Frequency	Percentage
Type of reconstruction	Calvarial bone + Le Fort	6	40.0%
	Calvarial bone + Bilateral lifting	8	53.3%
	Calvarial bone + Unilateral lifting	1	6.7%
		Mean (standard deviation)	Median (minimum and maximum value)
Time interval between reconstruction and implant (months)		8.1 (1.6)	7.0 (7.0-12.0)
Time interval between the implant and the healing cap (months)		6.4 (4.4)	5.0 (0.0-17.0)
Time interval between the healing cap and the prosthetic load (months)		2.7 (2.3)	2.0 (0.0-8.0)
Prosthetic load follow-up (months)		22.9 (18.2)	16.0 (3.0-54.0)

There was early loss of two implants in different patients, one in the right posterior region and the other in the left posterior region. All remaining implants were prosthetically loaded. The number of installed implants per patient ranged from 6 to 8 and the number of early losses per patient from 0 to 1 implant, with no late loss. Regarding the results of the crossovers of survival/loss of implants per patients, of the 15 patients analyzed, 13 (86.7%) had survival of all implants. A case of early loss of an implant occurred in a 69-year-old male patient, with class IV anterior maxillary and class V posterior maxillary atrophy, who underwent reconstruction with calvarial bone graft and bilateral maxillary sinus lift. The other case of implant loss, also early, occurred in a female patient, 59 years old, with severe anterior and posterior maxillary atrophy (Class VI), who underwent reconstruction with

calvarial bone graft and Le Fort I osteotomy.

Regarding the results on the total number of installed implants in the period, there were 95 dental implants, and for the total number of installed implants in the reconstructed jaws, the survival rate was 97.9%.

Table 3. Characteristics related to implants installed between the years 2014 to 2018, in atrophic maxillae reconstructed through grafting with bone from the cranial vault (n=15).

Variable	Category	Frequency	Percentage
Implant platform	EH	8	53.3%
	IH	7	46.7%
Implant platform	EH	52	54.7%
	IH	43	45.3%
Region of early loss	No loss	13	86.7%
	Posterior R	1	6.7%
	Posterior L	1	6.7%
		Mean (standard deviation)	Median (minimum and maximum value)
Number of installed implants per patient		6.3 (0.7)	6.0 (6.0-8.0)
Early loss (n)		0.1 (0.4)	0.0 (0.0-1.0)
Early loss (%)		2.1% (5.5%)	0.0% (0.0%-16.7%)

Table 4. Survival and loss of dental implants installed between 2014 and 2018 in patients with totally edentulous atrophic maxillae who underwent alveolar reconstruction with calvarial bone (n=15).

Variable	Category	Number of patients	Number of patients with implant loss	Percentage of patients with implant loss	Number of patients with survival of all implants	Percentage of patients with survival of all implants
Total		15	2	13.0%	13	86.7%
Sex	Female	10	1	10.0%	9	90.0%
	Male	5	1	20.0%	4	80.0%
Anterior maxillary atrophy	Class IV	5	1	20.0%	4	80.0%
	Class V	4	0	0.0%	4	100.0%
	Class VI	6	1	16.7%	5	83.3%
Posterior maxillary atrophy	Class IV	1	0	0.0%	1	100.0%
	Class V	6	1	16.7%	5	83.3%
	Class VI	8	1	12.5%	7	87.5%
Age	≤59 ^a	8	1	12.5%	7	87.5%
	>59	7	1	14.3%	6	85.7%
Type of reconstruction	Calvarial bone + Le Fort	6	1	16.7%	5	83.3%
	Calvarial bone + Bilateral lifting	8	1	12.5%	7	87.5%
	Calvarial bone + Right unilateral lifting	1	0	0.0%	1	100.0%
Time interval between reconstruction and implant	≤7,0 ^a	8	1	12.5%	7	87.5%
	>7,0	7	1	14.3%	6	85.7%
Time interval between the implant and the healing cap	≤5,0 ^a	9	1	11.1%	8	88.9%
	>5,0	6	1	16.7%	5	83.3%

Time interval between the healing cap and the prosthetic load	≤2,0 ^a	10	0	0.0%	10	100.0%
	>2,0	5	2	40.0%	3	60.0%
Prosthetic load follow-up	≤16,0 ^a	8	1	12.5%	7	87.5%
	>16,0	7	1	14.3%	6	85.7%
Implant platform	EH	8	1	12.5%	7	87.5%
	IH	7	1	14.3%	6	85.7%
Number of implants installed	6	12	1	8.3%	11	91.7%
	7	1	1	100.0%	0	0.0%
	8	2	0	0.0%	2	100.0%

^aMedian of the sample

Table 5. Survival and loss of dental implants installed between 2014 and 2018 in totally edentulous atrophic maxillae of 15 patients who underwent alveolar reconstruction with calvarial bone (n=95).

Variable	Category	Number of installed implants	Number of lost implants	Percentage of implant loss	Number of surviving implants	Percentage of implant survival
Total		95	2	2.1%	93	97.9%
Sex	Female	64	1	1.6%	63	98.4%
	Male	31	1	3.2%	30	96.8%
Anterior maxillary atrophy	Class IV	33	1	3.0%	32	97.0%
	Class V	24	0	0.0%	24	100.0%
	Class VI	38	1	2.6%	37	97.4%
Posterior maxillary atrophy	Class IV	8	0	0.0%	8	100.0%
	Class V	37	1	2.7%	36	97.3%
	Class VI	50	1	2.0%	49	98.0%
Age	≤59 ^a	52	1	1.9%	51	98.1%
	>59	43	1	2.3%	42	97.7%
Type of reconstruction	Calvarial bone + Le Fort	38	1	2.6%	37	97.4%
	Calvarial bone + Bilateral lifting	51	1	2.0%	50	98.0%
	Calvarial bone + R lifting	6	0	0.0%	6	100.0%
Time interval between reconstruction and implant	≤7,0 ^a	52	1	1.9%	51	98.1%
	>7,0	43	1	2.3%	42	97.7%
Time interval between the implant and the healing cap	≤5,0 ^a	58	1	1.7%	57	98.3%
	>5,0	37	1	2.7%	36	97.3%
Time interval between the healing cap and the prosthetic load	≤2,0 ^a	64	0	0.0%	64	100.0%
	>2,0	31	2	6.4%	29	93.6%

Variable	Category	Number of installed implants	Number of lost implants	Percentage of implant loss	Number of surviving implants	Percentage of implant survival
Prosthetic load follow-up	≤16,0 ^a	48	1	2.1%	47	97.9%
	>16,0	47	1	2.1%	46	97.9%
Implant platform	IH	52	1	1.9%	51	98.1%
	IH	43	1	2.3%	42	97.7%

Variable	Category	Number of installed implants	Number of lost implants	Percentage of implant loss	Number of surviving implants	Percentage of implant survival
	IH	43	1	2.3%	42	97.7%

^aMedian of the sample.

DISCUSSION

The gender with the highest proportion in the sample was female, which coincides with data presented in other studies involving maxillary reconstructions with calvarial bone grafts, such as those by Quiles et al. (2015) (20 women and 5 men)²³, de Moraes et al. (2015) (25 women and 17 men)¹⁹, Restoy-Lozano et al. (2015) (8 women and 2 men)²⁴, Mertens et al. (2017) (16 women 1 man)¹⁶, Carvalho et al. (2020) (10 women and 2 men)⁴. Gulinelli et al. (2017) were the only authors who

presented a higher prevalence of men, 7 men and 4 women⁹, and the data in the literature do not explain the reason for the higher proportion of women. Regardless of this, it was not possible to relate, in our work, implant failure rates to gender.

As for the mean age of patients in their samples, Mertens et al. (2011) described a mean age of 54 years (30-71)¹⁷, Moraes et al. (2015) had a mean age of 59.8 years (40-71)¹⁹, Quiles et al. reported a mean age of 57 years (43-75)²³, and Gulinelli et al. (2017) described a mean age of 45.9 years.⁹ Finally, Carvalho et al. (2020) had a sample with a mean age of 57 years (45-69).⁴ Our sample had a mean age close to that of these previously published studies, 58.5 years (40-73). These similarities are probably due to the age group of completely edentulous patients who most seek rehabilitation treatments

on implants, with no relationship between implant loss and patient age.

Regarding the rate of initial bone remodeling of the grafts, the literature shows it as variable and difficult to predict. Thus, simultaneous bone grafting and implantation were not usually indicated;^{3, 27} although survival rates for late implants may be lower than for immediate implants.²⁶ In a two-step procedure, the ideal implant site can be established more reliably after graft remodeling.³ Corroborating with authors who defend the installation of implants in a second moment, we performed the placement of implants after 7 to 12 months of maxillary reconstruction (mean of 8.1 months).

Regarding the period of implant failure, Donovan et al. (1994) described 7 failures before prosthetic loading and 6 failures in the first 4 months after loading.⁸ Mertens et al. (2011) reported 2 failures out of a

total of 99 implants, both lost before prosthetic loading.¹⁷ Mertens et al. (2013) presented 1 pre-load failure and 6 post-load failures.¹⁵ Quiles et al. obtained 15 early failures, with 9 new implant placement surgeries in these sites and 6 were not reinstalled, as the absence would not interfere with the final prosthetic result.²³ Moraes et al. (2015) obtained 13 pre-load failures (8%) and 6 post-load failures (3.7%), two in the first year and four in the next two years after loading.¹⁹ Carvalho et al. in 2020 described a single loss after 12 months of implant installation.⁴ In our sample, we had two failures (2.1% of the sample of 95 implants), both prior to prosthetic loading. In these two cases, the reason for the loss was the lack of osseointegration of the implants, diagnosed through complaints of local discomfort and mobility of the implants during the reopening phase. There was no relationship between

the loss and the type of reconstruction performed, nor infection at the sites of implant loss or suture dehiscence, and there were no implant failures during the post-load follow-up period.

With regard to the clinical survival of implants, Mertens et al. (2011) presented survival and success rates of 97.85% and 95.7%, respectively.¹⁷ Mertens et al., in their 2013 study, presented a survival rate of 98.64%. Quiles et al. found survival rates of 92.75% for implants placed in the anterior region of the maxilla and 91.34% for the posterior region of the maxilla.¹⁵ Moraes et al. (2015) found a survival rate of 95.97% after prosthetic loading.¹⁹ Mertens et al. (2017) showed overall implant survival of 98.51% and success of 86.7%.¹⁶ Gulinelli et al., in their 2017 study, showed a survival rate of 94.1%.⁹ Carvalho et al. (2020) described success rates of 97.73%,

associating this high rate with good initial implant stability at the time of installation.⁴ Our study found 97.9% survival of implants, consistent with rates reported in other publications.

The limitations of the study are based on the retrospective design of the work and the limited sample size that may influence the quality of the data, considering the small sample of patients and the wide confidence interval that limited the external validity of the results. In addition, it was not possible to evaluate the correlation between implant survival and the variables, nor to perform survival analysis, considering the significance level of 5%.

CONCLUSION

The calvarial bone represents an excellent donor area of

autogenous bone for use in reconstructions of atrophic maxillae and allows the installation of implants with adequate survival, proving to be predictable and stable, with high survival rates of these implants, in a mean follow-up of 22.9 months.

DECLARATIONS

There are no competing interests

All authors contributed and read the entire article and agree with the submission.

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REFERENCES

1. Al-Nawas B, Kämmerer PW, Morbach T, Ladwein C, Wegener J, Wagner W. Ten-year retrospective follow-up

study of the TiOblast dental implant. Clin Implant Dent Relat Res. 2012 Mar;14(1):127-34.

2. Barone A, Covani U. Maxillary alveolar ridge reconstruction with nonvascularized autogenous block bone: clinical results. J Oral Maxillofac Surg. 2007 Oct;65(10):2039-46.

3. Blomqvist, J, Alberius P, Isaksson S. Two-Stage Maxillary Sinus Reconstruction with Endosseous Implants: A Prospective Study. Int J Oral Maxillofac Implants. 1998 13 (6) :758-766.

4. Carvalho FA, Ponzoni D, Vedovatto E, de Carvalho PSP. Remodeling of calvarial graft in increased atrophic maxillary thickness. A prospective clinical study. Clin Implant Dent Relat Res. 2020 Feb;22(1):84-90.

5. Cawood JI, Howell RA. A classification of the edentulous jaws. Int J Oral Maxillofac Surg 1988 Aug;17(4):232-6.

6. Chiapasco M, Brusati R, Ronchi P. Le Fort I osteotomy with interpositional bone grafts and delayed oral implants for the rehabilitation of extremely atrophied maxillae: a 1-9-year clinical follow-up study on humans. Clin Oral Implants Res. 2007 Feb;18(1):74-85.

7. Chiapasco M, Gatti C. Immediate loading of dental implants placed in revascularized fibula free flaps: a clinical report on 2 consecutive patients. *Int J Oral Maxillofac Implants*. 2004 Nov-Dec;19(6):906-12.
8. Donovan MG, Dickerson NC, Hanson LJ, Gustafson RB. Maxillary and mandibular reconstruction using calvarial bone grafts and Branemark implants: a preliminary report. *J Oral Maxillofac Surg*. 1994 Jun;52(6):588-94.
9. Gulinelli JL, Dutra RA, Marão HF, Simeão SFP, Groli Klein GB, Santos PL. Maxilla reconstruction with autogenous bone block grafts: computed tomography evaluation and implant survival in a 5-year retrospective study. *Int J Oral Maxillofac Surg*. 2017 Aug;46(8):1045-1051.
10. Gurler L, Delibasi C, Tufekcioqlu S. Comparison of alveolar ridge splitting and autogenous only bone grafting to enable implant placement with atrophic jaw bones. *Saudi Med J*. 2017;38(12):1207-1212.
11. Hardesty RA, Marsh JL. Craniofacial onlay bone grafting: a prospective evaluation of graft morphology, orientation and embryonic origin. *Plast Reconstr Surg*. 1990; 85:5–15.
12. Kirmeier R, Payer M, Lorenzoni M, Wegscheider WA, Seibert FJ, Jakse N. Harvesting of cancellous bone from the proximal tibia under local anesthesia: donor site morbidity and patient experience. *J Oral Maxillofac Surg*. 2007 Nov;65(11):2235-41.
13. Klüppel LE, Antonini F, Olate S, Nascimento FF, Albergaria-Barbosa JR, Mazzone R. Bone repair is influenced by different particle sizes of anorganic bovine bone matrix: a histological and radiographic study in vivo. *J Craniofac Surg* 2013; 24: 1074-1077.
14. Le Lorc'h-Bukiet I, Tulasne JF, Llorens A, Lesclous P. Parietal bone as graft material for maxillary sinus floor elevation: structure and remodeling of the donor and of recipient sites. *Clin Oral Implants Res*. 2005 Apr;16(2):244-9.
15. Mertens C, Decker C, Seeberger R, Hoffmann J, Sander A, Freier K. Early bone resorption after vertical bone augmentation- a comparison of calvarial and iliac grafts. *Clin Oral Implants Res*. 2013 Jul;24(7):820-5.
16. Mertens C, Freier K, Engel M, Krisam J, Hoffman J, Freudlsperger C. Reconstruction of the severely atrophic maxillae with calvarial bone grafts. *Clin Oral Implants Res*. 2017;28(6):749-756.

17. Mertens C, Steveling HG. Implant-supported fixed prostheses in the edentulous maxilla: 8-year prospective results. *Clin Oral Implants Res.* 2011 May;22(5):464-72.
18. Movahed R, Pinto LP, Morales-Ryan C, Allen WR, Wolford LM. Application of cranial bone grafts for reconstruction of maxillofacial deformities. *Proc (Bayl Univ Med Cent).* 2013 Jul;26(3):252-5.
19. Moraes PH, Olate S, Lauria A, Asprino L, de Moraes M, de Albergaria-Barbosa JR. 8-10 year follow-up survival of dental implants in maxillae with or without autogenous bone graft reconstruction. *Int J Clin Exp Med.* 2015 Oct 15;8(10):19282-9.
20. Orsini G, Bianchi AE, Vinci R, Piattelli A. Histologic evaluation of autogenous calvarial bone in maxillary onlay bone grafts: a report of 2 cases. *Int J Oral Maxillofac Implants.* 2003 Jul-Aug;18(4):594-8.
21. Peer LA, Baltimore MD. *Transplantation of Tissues*, vol 1. Baltimore: Williams & Wilkins Co.; April 1955;38(2):473.
22. Pereira CC, Gealh WC, Martins MM, Homsy N, Garcia IR Jr. Utilization of surgical trepan for the obtainment of calvarial autogenous bone graft in maxillary reconstructions. *J Oral Implantol* 2011;37(3):347-351.
23. Quiles JC, Souza FA, Bassi AP, Garcia IR Jr, França MT, Carvalho PS. Survival rate of osseointegrated implants in atrophic maxillae grafted with calvarial bone: a retrospective study. *Int J Oral Maxillofac Surg.* 2015 Feb;44(2):239-44.
24. Restoy-Lozano A, Dominguez-Mompell JL, Infante-Cossio P, Lara-Chao J, Lopez-Pizarro V. Calvarial Bone Grafting for Three-Dimensional Reconstruction of Severe Maxillary Defects: A Case Series. *Int J Oral Maxillofac Implants.* 2015 Jul-Aug;30(4):880-90.
25. Smolka W, Eggensperger N, Kollar A, Iizuka T. Midfacial reconstruction using calvarial split bone grafts. *Arch Otolaryngol Head Neck Surg.* 2014 Feb;131(2):131-6.
26. Tolman DE. Reconstructive procedures with endosseous implants in grafted bone: a review of the literature. *Int J Oral Maxillofac Implants.* 1995;10(3):275-294.
27. Tong DC, Rioux K, Drangsholt M, Beirne OR. A review of survival rates for implants placed in grafted maxillary sinuses using meta-analysis. *Int J Oral Maxillofac Implants.* 1998 Mar-Apr;13(2):175-82.

ORTHOGNATHIC SURGERY IN CLEFT LIP AND PALATE PATIENTS: LITERATURE REVIEW

CIRURGIA ORTOGNÁTICA EM PACIENTES COM FISSURA LABIOPALATINA: REVISÃO DE LITERATURA

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Resumo

O tratamento de pacientes que nasceram com fissuras labiopalatinas é desafiador e demorado, pois requer múltiplas intervenções para reestabelecer função e estética. A cirurgia ortognática compreende uma parte essencial no plano de tratamento, uma vez que uma grande porcentagem dos pacientes com fissuras apresentam deformidade dentoalveolar associada. A partir disso, foi proposto a realização de uma revisão de literatura, que contou com uma busca nas bases de dados eletrônicas PubMed, Virtual Health Library (VHL), Cochrane e Scielo, utilizando os descritores “Orthognathic surgery”, “Cleft palate” and “Stability”, retirados de descritores em ciências da saúde (DeCs/Mesh). Constatou-se que há taxas de complicações mais altas em cirurgias ortognática realizadas em pacientes com fissuras em comparação com cirurgias feitas em pacientes sem fissura. Estudos como este são importantes para levar conhecimento à cirurgias

bucomaxilofaciais e craniomaxilofaciais de tais complicações, a fim de garantir estabilidade e sucesso do tratamento.

Palavras-chave: cirurgia ortognática; fissura palatina; estabilidade.

Abstract

The treatment of patients born with cleft lip and palate is laborious and time-consuming, as it requires multiple interventions to reestablish function and aesthetics. Orthognathic surgery comprises an essential part of the treatment plan since a large percentage of patients with clefts have associated dentoskeletal deformity. From this, it was proposed to carry out a literature review, which involved a search in the electronic databases PubMed, Virtual Health Library (VHL), Cochrane and Scielo, using the descriptors “Orthognathic Surgery”, “Cleft palate” and “Stability”, taken from descriptors in health sciences (DeCs/Mesh). It has been found that there are higher complication rates in orthognathic surgeries performed on patients with clefts compared to surgeries performed on patients without clefts. Studies like these are important to bring knowledge to oral and maxillofacial surgeon and craniomaxillofacial of such complications, in order to guarantee the stability and success of the treatment.

Keywords: orthognathic surgery; cleft palate; stability.

Introdução

As fissuras labiopalatinas são definidas como defeitos na fusão adequada das proeminências faciais; são

estabelecidas no período embrionário entre a 4^a e 12^a semana da embriogênese, onde há o desenvolvimento do rosto humano, originando-se do 1º e 2º arcos

faríngeos¹. Alterações e atrasos no processo de fusão entre a proeminência maxilar e a proeminência nasal podem gerar fissura labial unilateral ou bilateral. Com o desenvolvimento da mandíbula, a língua começa a se achatar e se mover anteriormente e inferiormente, fazendo com que as duas prateleiras palatinas comecem a se elevar para uma posição horizontal e a crescer aproximando-se uma da outra. A união é finalizada na 12ª semana e forma o palato duro. Falha na elevação, contato ou fusão das prateleiras palatinas resulta em fissuras².

Uma classificação muito utilizada para as fissuras labiopalatinas é a segundo Spina et al³, modificada por Silva Filho et al⁴: fissuras pré-forame incisivo; fissuras transforame incisivo; fissuras pós-forame incisivo; fissura submucosa; fissuras raras de face. As fissuras pós-forame incisivo são isoladas de palato, ou seja, mantém lábio e processo alveolar intactos. As consequências desse tipo de fissura são funcionais e estéticas,

abrangendo mecanismo velofaríngeo e trompa auditiva. Já as fissuras transforame incisivo são totais, envolvendo palato primário e secundário, cuja extensão vai do lábio a úvula. As alterações craniofaciais observadas incluem: alteração tridimensional da maxila, diminuição do tamanho mandibular e rotação no sentido horário, dimensão vertical mais longa (devido à postura baixa da língua durante o crescimento e o espaço estreito do palato), arco superior e abóbada palatina atrésicos, má oclusão e mordida aberta⁵⁻⁶. A gravidade da hipoplasia maxilar está relacionada ao tipo de fissura. Os casos de fissura bilateral apresentam um quadro clínico de mordida cruzada posterior bilateral, devido à maxila ser extremamente estreita, resultando no colapso medial dos segmentos alveolares posteriores⁷.

A cirurgia ortognática entra como uma etapa fundamental de tratamento e sua estabilidade está diretamente relacionada aos fatores pertinentes ao tipo

de fissura encontrada. O presente estudo tem por objetivo fazer um levantamento dos fatores pré-existentes e as possíveis complicações que venham comprometer a estabilidade e sucesso da cirurgia ortognática.

Objetivos

Objetivo geral

Avaliar o impacto da cirurgia ortognática em pacientes com fissuras labiopalatinas.

Objetivo específico

Avaliar quais os fatores que podem interferir na estabilidade e sucesso a longo prazo da cirurgia ortognática.

Materiais e métodos

A pesquisa foi realizada tendo por base a estratégia PICO8, segundo o protocolo PRISMA9 (Preferred Reporting Items for Systematic reviews and Meta-Analyses), descrita na tabela 1. A revisão de literatura foi feita através do levantamento de dados nas bases de dados eletrônicas PubMed, Virtual Health Library (VHL), Cochrane e Scielo, utilizando os descritores “Orthognathic surgery”, “Cleft palate” and “Stability”, retirados de descritores em ciências da saúde (DeCs/Mesh).

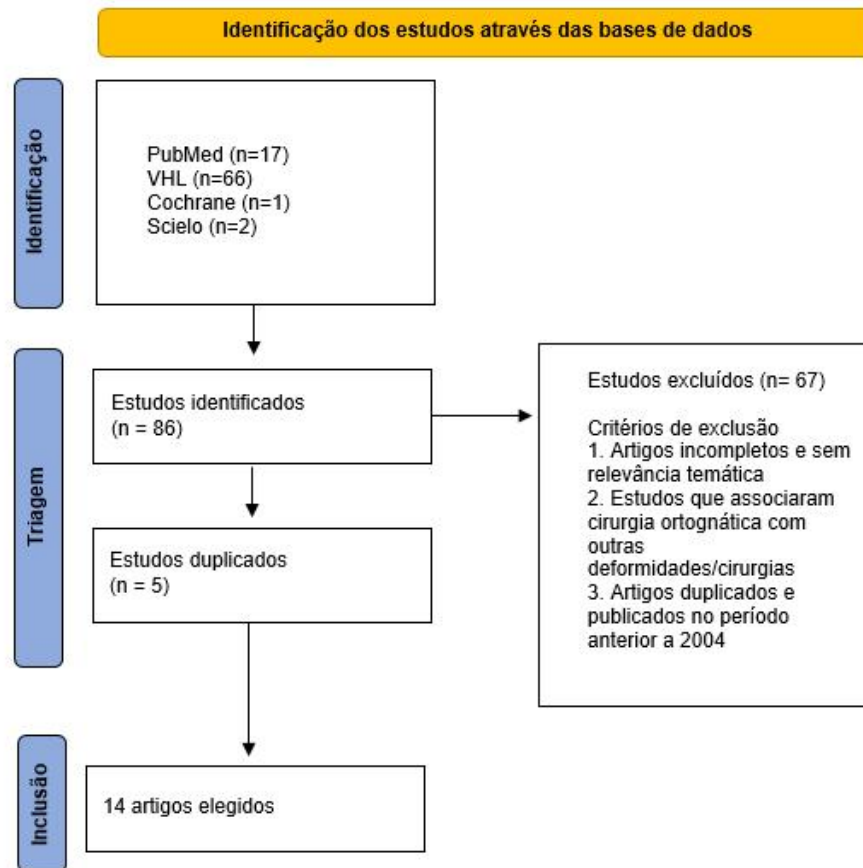
Tabela 1: Estratégia PICO

Estratégia PICO	Descrição
P	População: pacientes com fissuras labiopalatinas
I	Intervenção: cirurgia ortognática

C	Comparação: cirurgia em pacientes não fissurados		
O	Outcomes	(desfecho):	
	quais	fatores	garantem estabilidade

Na primeira etapa da pesquisa foram encontrados 86 artigos. Os critérios de inclusão selecionaram artigos que respondem a pergunta central do trabalho, artigos publicados entre 2004 e 2024 e que envolviam pacientes com fissuras labiopalatinas que foram submetidos a cirurgia ortognática. Após seleção por data, análise de títulos e remoção dos duplicados, 28 artigos foram separados para análise, perfazendo 14 estudos selecionados ao final (Figura 1).

Figura 1. Fluxograma do processo de busca e seleção dos artigos.



Fonte: Acervo do próprio autor, 2024

Resultados

Após elegibilidade, foram incluídos 14 artigos para elaboração desta revisão de literatura, os resultados pertinentes foram organizados conforme tabela 2.

Tabela 2: Resultados dos artigos elegidos na seleção final

Autores	Resultados
Ruschasetkul S et al.10	Dois anos após a cirurgia bimaxilar, os pacientes com fissura labiopalatina unilateral (FLPU) apresentaram maior recidiva sagital da maxila em comparação aos pacientes com fissura labiopalatina bilateral (FLPB), devido a um maior avanço cirúrgico nos pacientes com FLPU. A maxila moveu-se para cima em ambos os grupos e para trás no grupo FLPU. A mandíbula moveu-se para frente e para cima, mudou para o lado da fenda e girou para cima em ambos os grupos. A quantidade de avanço cirúrgico foi um fator de risco para estabilidade sagital na maxila. A mandíbula teve três fatores de risco para estabilidade sagital: idade, equipe cirúrgica e quantidade de recuo cirúrgico.
Liao YF et al.11	Pacientes com FLPU e deformidade esquelética classe III foram submetidos consecutivamente a osteotomias Le Fort I

e sagitais bilaterais. Uma recidiva clinicamente insignificante foi encontrada na maxila (<1 mm) e mandíbula (<2 mm). Houve uma melhora significativa na protrusão e relação da mandíbula, ângulo e oclusão dos incisivos e desvio do mento.

Mafféis J et
al.12

A osteotomia Le Fort 1 é um procedimento que apresentou estabilidade em pacientes com FLPB. A recorrência do recuo maxilar variou de 1,1 mm em um ano a 1,7 mm no acompanhamento de longo prazo em relação à pré-maxila. Essa recorrência deve ser levada em consideração durante o procedimento e na fase de contenção pós-operatória.

Nys M et al.13

Cirurgia ortognática feita com planejamento virtual permite um reposicionamento preciso da maxila hipoplásica em pacientes com fissura labiopalatina. No entanto, as translações anteroposteriores e as rotações de Pitch continuam desafiadoras de serem alcançadas durante a cirurgia. Esses movimentos também foram considerados menos estáveis no acompanhamento de

	um ano.
Jang H et al.14	Estabilidade esquelética favorável pode ser obtida sem enxerto ósseo quando a quantidade de avanço maxilar é menor que 6 mm em pacientes com fissura.
Lundberg et al.15	Cirurgia ortognática teve taxa de recidiva esquelética de 15%, sem diferença significativa quando avaliado o fator idade.
Yamaguchi et al16	Relacionam uma menor taxa de recidiva com a extensão não excessiva dos movimentos de maxila para frente, mobilização maxilar suficiente e experiência do cirurgião. Observaram também complicações pós operatórias em seus procedimentos, sendo elas: parestesia temporária do NAI e insuficiência velofaríngea, no entanto, não relacionadas ao insucesso da técnica, tendo em vista que se resolveram com o tempo.
Lee et al.17	Relacionaram alterações na posição da ATM no pós operatório com maior instabilidade pós operatória em pacientes fissurados comparado a pacientes classe III esquelética não fissurados.

Wangsrimgkol et al.18	Observaram a necessidade de sobrecorreção em ortognática Le Fort I para pacientes fissurados, objetivando compensar alterações previstas nesses pacientes. No entanto, não consideram taxa maior de recidiva em pacientes fissurados.
Park et al.19	Correlacionam, em cirurgias bimaxilares para pacientes fissurados, a rotação horária da mandíbula com maiores recidivas maxilares
Gomes et al.20	Mostraram que o não uso de enxertos ósseos pode contribuir para o aumento de recidivas pós operatórias. Também atribuíram um maior número de recidivas em paciente fissurados algumas variáveis como diversas cirurgias anteriores, tecido fibroso resultante de procedimentos anteriores, alterações na dentição e no equilíbrio muscular.
Saltaji et al.21	Observaram uma maior taxa de recidiva quando realizado o movimento de rotação horária em comparação com movimentos horizontais.
Shin et al.22	Notaram maior instabilidade em

	movimentos verticais em comparação com horizontais.
Valls-Ontañón et al.23	Relacionaram amplos movimentos com maiores taxas de recidivas.

Discussão

A sequência de tratamento de pacientes com fissuras labiopalatinas tem início a partir dos três meses, onde será feita a correção do lábio, queiloplastia, e nos casos de fissura com envolvimento nasal, a correção primária é feita no mesmo momento. A palatoplastia é indicada no período entre 12 e 18 meses de idade. Há uma sequência de retornos para avaliação ambulatorial, sendo eles: um ano após cirurgias primárias; no período de quatro a seis anos; entre oito e dez anos; entre 10 e 12 anos e após o término da ortodontia. A partir dos 18 anos é feita uma avaliação estético-funcional para alta definitiva pela equipe envolvida no tratamento²⁴. Um grande percentual dos pacientes da continuidade para o tratamento orto-cirúrgico, pois necessitam de cirurgia ortognática. Isso acontece devido à deficiência tridimensional da maxila, que geram uma maloclusão Classe III dento-esquelética, com rotação mandibular e redução da altura facial inferior. Apesar da cirurgia ortognática ser

um procedimento seguro, há peculiaridades e mais complicações quando comparado as cirurgias feitas em pacientes não fissurados²⁵.

De acordo com os resultados obtidos através desta pesquisa, pode-se constatar alguns fatores que influenciam na estabilidade e recidiva. A instabilidade mostra-se mais prevalente nos casos onde há movimentos amplos e de rotação horária; pacientes que foram submetidos a cirurgias múltiplas e que possuíam tecido fibroso resultante de procedimentos anteriores; alterações na dentição e no equilíbrio muscular; alterações na posição da ATM no pós-operatório que foram maiores em pacientes fissurados comparado a pacientes classe III esquelética não fissurados; fissura labiopalatina unilateral apresentaram maior recidiva sagital da maxila em comparação à fissura bilateral; translações anteroposteriores e as rotações de “Pitch” foram considerados menos estáveis no acompanhamento de um ano¹⁰⁻²³. Os casos onde há a

necessidade de realizar enxerto ósseo alveolar para aumentar o osso maxilar deficiente aumentam a complexidade operatória. As principais complicações pós-operatórias são: mobilidade da pré-maxila; recessão gengival e exposição radicular do canino (ou do primeiro pré-molar quando o canino está ausente); perda de vitalidade dentária e necrose do segmento maxilar; insuficiência velofaríngea e fístula na região do forame incisivo²⁵. A porcentagem de recidiva na osteotomia sagital parece ser maior, chegando a 40%. Alguns fatores estão relacionados, entre eles: presença de tecido cicatricial, principalmente em lábios, gengiva e mucosa do palato e falta de resistência do rebordo alveolar fissurado. A recorrência de recuo maxilar requer atenção durante a fase de contenção pós-operatória¹. Segundo Buddhathida Wangsrimongkol et al.¹⁸ há a necessidade de sobrecorreção em ortognática Le Fort I para pacientes fissurados, objetivando compensar alterações previstas nesses pacientes.

Planejamento virtual, experiência do cirurgião e movimentos cirúrgicos como verticais e osteotomia Le Fort 1 foram diretamente relacionados ao sucesso e estabilidade cirúrgica^{13,16}.

Conclusão

A cirurgia ortognática compreende uma etapa essencial no tratamento dos pacientes com fissuras labiopalatinas. Contudo, apresenta um grande desafio para os cirurgiões, uma vez que há diversos fatores que aumentam as complicações comprometendo a estabilidade e sucesso da cirurgia. Sugere-se que mais pesquisas sejam feitas para que os cirurgiões-dentistas tenham domínio desses fatores e evoluam a técnica cirúrgica, permitindo manejo refinado, a fim de proporcionar resultados cada vez melhores aos pacientes.

Referências

1. Mafféis J, Odri GA, Mercier JM, et al. Stability of Le Fort 1 osteotomy in patients with bilateral cleft lip and palate: A retrospective study of 71 patients. *Journal of Cranio-Maxillofacial Surgery* [Internet]. 2023 Jul 1 [cited 2023 Dec 12];51(7):407–15. Available from: <https://www.sciencedirect.com/science/article/abs/pii/S1010518223001014>
2. Babai A, Irving M. Orofacial Clefts: Genetics of Cleft Lip and Palate. *Genes* [Internet]. 2023 Aug 9;14(8):1603. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10454293/>
3. Spina V, Psillakis JM, Lapa FS, et al. [Classification of cleft lip and cleft palate. Suggested changes]. *Revista Do Hospital Das Clinicas* [Internet]. 1972 Jan 1;27(1):5–6. Available from: <https://pubmed.ncbi.nlm.nih.gov/4671376/>
4. Silva Filho OG, Ferrari Junior FM, Rocha DL, et al. Classificação das fissuras labio-palatais: breve historico, considerações clínicas e sugestão de modificação. *Revista Brasileira de Cirurgia* [Internet]. 1992;82(2):59–65. Available from: <https://repositorio.usp.br/item/000838434>
5. Ye B, Wu Y, Zhou Y, et al. A comparative cephalometric study for adult operated cleft palate and unoperated cleft palate patients. *Journal of Cranio-Maxillofacial Surgery*. 2015 Sep;43(7):1218–23.
6. Šmahel Z, Velemínská J, Trefný P, et al. Three-Dimensional Morphology of the Palate in Patients with Bilateral Complete Cleft Lip and Palate at the Stage of Permanent Dentition. *The Cleft Palate-Craniofacial Journal*. 2009 Jul;46(4):399–408.

7. Roy AA, Rtshiladze MA, Stevens K, et al. Orthognathic Surgery for Patients with Cleft Lip and Palate. Clinics in plastic surgery [Internet]. 2019;46(2):157–71. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/30851748>
8. Stone PW. Popping the (PICO) question in research and evidence-based practice. Applied Nursing Research. 2002 Aug;15(3):197–8.
9. Page MJ, McKenzie JE, Bossuyt PM, et al. The PRISMA 2020 statement: an Updated Guideline for Reporting Systematic Reviews. British Medical Journal. 2021 Mar 29;372(71).
10. Ruschasetkul S, Liao YF, Chang CS, et al. Comparison of stability and outcomes of surgery-first bimaxillary surgery for skeletal class III deformity between unilateral and bilateral cleft lip and palate. Clin Oral Investig [Internet]. 2022 [cited 2024 Jul 4];3665–77. Available from: <https://pesquisa.bvsalud.org/portal/resource/en/mdl-35094199>
11. Liao YF, Chen YF, Chang CS, Lu TC, Chen YA, Yao CF, et al. Surgery-first orthognathic approach for correction of dentofacial deformity in unilateral cleft lip and palate. Plastic & Reconstructive Surgery. 2023 Mar 22;Publish Ahead of Print.
12. Mafféïs J, Odri GA, Mercier JM, et al. Stability of Le Fort 1 osteotomy in patients with bilateral cleft lip and palate: A retrospective study of 71 patients. Journal of Cranio-Maxillofacial Surgery [Internet]. 2023 Jul 1;51(7):407–15. Available from: <https://www.sciencedirect.com/science/article/abs/pii/S1010518223001014>
13. Nys M, Den V, Shaheen E, et al. Three-dimensional planning accuracy and

- follow-up of Le Fort I osteotomy in cleft lip/palate patients. *Journal of stomatology, oral and maxillofacial surgery/Journal of stomatology oral & maxillofacial surgery*. 2023 Sep 1;124(4):101421–1.
14. Jang H, Park JY, Choi NR, et al. Skeletal Stability of Two-Jaw Surgery Without Bone Grafting in Patients With Cleft Lip and Palate. *The Journal of craniofacial surgery/The journal of craniofacial surgery*. 2021 Sep 20;33(2):e150–3.
15. Lundberg J, Nameer Al-Taai, Eva Levring Jäghagen, Ransjö M, Mats Sjöström. Skeletal stability after maxillary distraction osteogenesis or conventional Le Fort I osteotomy in patients with cleft lip and palate: A superimposition-based cephalometric analysis. *Oral and maxillofacial surgery*. 2024 Feb 16;28(2):925–34.
16. Yamaguchi K, Lonic D, Lo LJ. Complications following orthognathic surgery for patients with cleft lip/palate: A systematic review. *Journal of the Formosan Medical Association*. 2016 Apr;115(4):269–77.
17. Lee YH, Tsai CY, Wang LC, Lai U-Kei, Lai J, Lin SS, et al. Comparison of the Post-Surgical Position of the Temporomandibular Joint after Orthognathic Surgery in Skeletal Class III Patients and Patients with Cleft Lip and Palate. *Journal of Personalized Medicine*. 2022 Aug 31;12(9):1437–7.
18. Buddhathida Wangsrimongkol, Flores RL, Staffenberg DA, Rodriguez ED, Shetye PR. Skeletal and Dental Correction and Stability Following LeFort I Advancement in Patients With Cleft Lip and Palate With Mild, Moderate, and Severe Maxillary Hypoplasia. *The cleft palate-craniofacial journal*. 2021 Mar 15;59(1):98–109.

19. Park YH, Seo JH, Yang IH, Choi JY, Lee JH, Kim MJ, et al. What Are the Contributing Factors for Postsurgical Relapse After Two-Jaw Surgery in Patients With Cleft Lip and Palate. J Craniofac Surg [Internet]. 2017 [cited 2024 Jul 4];1071–7. Available from: <https://pesquisa.bvsalud.org/portal/resource/en/mdl-28207462>
20. Gomes KU, Martins WDB, Ribas M de O. Horizontal and vertical maxillary osteotomy stability, in cleft lip and palate patients, using allogeneic bone graft. Dental Press Journal of Orthodontics. 2013 Oct;18(5):84–90.
21. Saltaji H, Major MP, Alfakir H, Al-Saleh MAQ, Flores-Mir C. Maxillary Advancement With Conventional Orthognathic Surgery in Patients With Cleft Lip and Palate: Is It a Stable Technique? Journal of Oral and Maxillofacial Surgery. 2012 Dec;70(12):2859–66.
22. Shin H, Hsieh YJ, Liao YF, Lo LJ, Jo MS. Bony Stability and Soft Tissue Changes after Orthognathic Surgery on Patients with Cleft. Archives of Craniofacial Surgery. 2012;13(1):4.
23. Valls-Ontañón A, Fernandes-Ciaccia L, Haas-Junior OL, Hernández-Alfaro F. Relapse-related factors of Le Fort I osteotomy in cleft lip and palate patients: A systematic review and meta-analysis. Journal of Cranio-Maxillofacial Surgery. 2021 Oct;49(10):879–90.
24. ETAPAS E CONDUTAS TERAPÊUTICAS FISSURAS LABIOPALATINAS • ANOMALIAS CRANIOFACIAIS • SAÚDE AUDITIVA • SÍNDROMES [Internet]. Available from: https://hrac.usp.br/wp-content/uploads/2018/02/etapas_e_condutas_terapeuticas_hrac_fev_2018.pdf

25. Fábio Marzullo Zaroni, Henrique P, Maffia F, Scariot R. Complications of orthognathic surgery in patients with cleft lip and palate: a systematic review. Journal of stomatology, oral and maxillofacial surgery/Journal of stomatology oral & maxillofacial surgery. 2024 Feb 1;101795–5.



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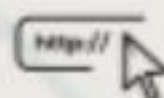
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