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ORTHODONTIC TREATMENT IN A FACE PATTERN PATIENT LONGA: A CASE REPORT

Sara Pires Carvalho

Valba Luz Augusto Oliveira

Antonio Carlos de Lacerda França

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Abstract: Introduction: Nowadays, patients come to orthodontists' offices with demands that go beyond the dental issue. The face has become one of the main complaints, because with some deformities, in addition to the aesthetic factor, it also impairs orofacial functions. The Long Face pattern is a facial deformity with increased anterior facial height. In this pattern, there is lip incompetence with contraction of the perioral muscles. Excessive vertical dentoalveolar growth causes gingival exposure during smiling, which is the main complaint of the patient in the clinical case. **Aim: To** report the clinical case of a patient with a Long Face pattern treated an orthodontic-surgical approach. **Methods:** After orthodontic treatment pre-surgery, the patient underwent orthognathic surgery and then orthodontic finalization with occlusal adjustment. **Results:** The treatment promoted passive lip sealing with adequate gingival exposure in the smile and a straight facial profile. **Conclusion:** treatment in patients with a vertical growth pattern is an excellent alternative to correct the disharmony skeletal and improve facial aesthetics and of the smile, in addition , promotes strong impact positive on the quality of life of individuals.

INTRODUCTION

Orthodontics is a specialty in dentistry that works to correct different problems in the development of dentofacial structures. As such, it is a dental specialty that repositions the jawbone and corrects the position of misaligned teeth. It is the oldest of the dental specialties, and since ancient times, crowded and irregular teeth (malocclusion) have been a major problem for the population. Attempts to correct these dental defects date back to at least 1,000 BC, according to findings in Greek excavations of primitive orthodontic appliances (VELLINI, 2008).

In dentistry, orthodontics is the specialty that treats dental malocclusions, which can be applied at various stages of growth and craniofacial development and in the different dentitions; deciduous, mixed and permanent, orthodontics can be preventive or interceptive. Orthodontic treatment can be carried out during the growth and skeletal development phase and, after this phase, as a corrective treatment acting only on the malocclusion. For each problem, there is a different type of solution, which is individually adapted to the patient's needs. In some cases, alterations require correction through orthognathic surgery, such as facial asymmetries associated with poor transverse relationship of the maxilla and mandible bones (PEÇANHA & CARVALHO, 2022).

The Long Face manifests itself at an early age and remains a characteristic of the individual, whether or not during adolescence. This vertical deformity can be present in all three sagittal dental relationships, but is most commonly associated with Class II sagittal discrepancies (CARDOSO, 2003). Children and adults who manifest this excessive vertical facial growth have a characteristic appearance, described in the literature as "long face syndrome, hyperdivergent facial type and, recently, Long Face Pattern" (CAPELOZZA FILHO, 2007).

The main complaint of these patients is excessive exposure of the upper front teeth and gums, with the lips at rest (CARDOSO, 2003). The diagnosis of the Long Face Pattern is based on assessments of facial morphology and cephalometry. Facial analysis allows us to identify numerous characteristics common to these individuals, such as: absence of passive lip sealing and contraction of the mentonian muscle during lip closure, as well as a large exposure of the upper incisors when the lips are at rest, and the gums when smiling. The nose is long, with a narrowing of the alar bases, and

the zygomatic is generally flat. The lower third of the face is long, resulting in a retrognathic appearance of the mandible (CAPELOZZA FILHO, *2007*).

A gummy smile is characterized by excessive exposure of the gums when the individual smiles. This facial alteration occurs due to excessive vertical growth of the face or horizontal projection of the jaw. According to Seixas, Costa-Pinto and Araújo (2011), in the clinical assessment of GS there is a "*checklist*" of great importance and usefulness for its diagnosis, which includes the systematized recording of the interlabial distance at rest, the exposure of the upper incisors during rest and speech, the width/length ratio of the upper incisors and the morphofunctional characteristics of the upper lip. Camargo et al. (2017) state that it is extremely important for the dental surgeon to carry out a thorough clinical examination and, when necessary, resort to auxiliary diagnostic methods, such as radiographic examinations and CT scans.

The etiology of SG is multifactorial and includes short upper lip, hypermobility of the upper lip, vertical excess of the maxillary bone, altered passive eruption and anterior dentoalveolar extrusion, gingival alterations, race and gender, among others (CHACON, 2020). Treatment is based on periodontal and orthognathic surgical techniques, as well as use of less invasive techniques, such as orthodontic therapy and the application of Botulinum Toxin (PIRES, SOUZA and MENEZES, 2010).

Lateral radiography of the face is a necessary tool to help identify the long face, with the aim of locating and quantifying skeletal disharmony, which can be associated with: horizontal or distal growth of the condyle and/or excessive posterior growth of the maxilla. This examination, although deprived of the image of the zygomatic projection known to be affected in the long face is of great value in the differential diagnosis, as each condition carries a different prognosis for treatment. (CARDOSO, 2005)

The prevalence of the Long Face pattern varies from 1.5% to 14.6% in the adult population and approximately half of these patients require surgical intervention (CUNHA, 2022).

From the classical perspective, these morphological signs are the essence of the disease. Thus, orthodontic treatment alone is very limited and an orthodontic-surgical procedure is usually the most appropriate option for achieving adequate aesthetics, function and stability (CARDOSO, 2002).

Capelozza et. al (2007) developed a method that addresses the facial aesthetic problem to the detriment of the occlusal relationship. They classified the long face into moderate, medium and severe according to the severity shown by the face.

Cases of medium and severe complexity usually have such marked deviations that it is largely impossible to provide the patient with a satisfactory degree of resolution of the problem through orthodontics/orthopedics. Orthognathic surgery is therefore definitely indicated for the aesthetic and functional restoration of patients with facial disfigurement (Cao Y, 2009).

The primary aim of surgical treatment is to correct functional deficiencies and promote balance between teeth and bone bases, as well as restoring facial aesthetics and soft tissues. Orthognathic surgery with counterclockwise rotation of the occlusal plane, maxillary impaction and mentoplasty is usually used for this facial problem (GIMENEZ, 2006).

Even when the patient has an indication for orthognathic surgery, it is sometimes necessary to start the treatment by undergoing orthodontic preparation using passive self-ligating braces to align the teeth, without considering the bone change itself, which will be corrected during surgery. This phase

is extremely important for the success of the surgery and should therefore be carried out by a professional experienced in pre-surgical preparation, since only good preparation can guarantee a good fit of the jaws during surgery. Throughout the preparation, it is extremely important that the patient is periodically assessed by the surgeon, in order to monitor the conduct of the orthodontic treatment and provide instructions the oral surgeon to his dentist. Through examinations and moldings on 3D prototyped models, the surgeon will decide when the patient is ready for surgery (CAPELOZZA, 2007).

The study in question is a clinical case report of a female patient who came to the office seeking orthodontic treatment. After assessment, it was identified that she needed to treat class I malocclusion, facial asymmetry due to the difference in size between the condyles and a gummy smile. She was orthodontically prepared for orthognathic surgery.

CASE REPORT

Patient A.S.G, female, 45 years old, sought orthodontic treatment at the dental clinic of the Specialization Course in Orthodontics at the Centre for Dental Studies (CENO), presenting with a class I malocclusion and an open bite. He complained of mouth breathing, atypical swallowing and teeth clenching during the day and at night.

In the anamnesis, the patient reported having worn braces for four years, more than two years ago.

EXTRAORAL EXAMINATION

On extra-oral examination, the patient had a long face, an enlarged lower third of the face, facial asymmetry with a deviation to the right and a forced lip seal.

FIGURE 1 -EXTRAORAL EXAMINATION

Source: The author

INTRAORAL EXAMINATION

Intraoral examination indicated the presence of a lateral open bite, gummy smile, crossbite 14 and 16. The upper and lower midlines were deviated in relation to the facial midline. There was also excessive anterosuperior dental and dentogingival exposure during smiling, caused by excessive enlargement of the lower third of the face, resulting in a retrognathic appearance of the mandible.

FIGURE 2 -INTRAORAL EXAMINATION -Frontal smile

SOURCE: The author

IMAGING EXAMS

Cephalometry is a necessary tool for defining, locating and quantifying skeletal disharmony, which can be associated with horizontal growth of the condyle and/or excessive posterior growth of the maxilla.

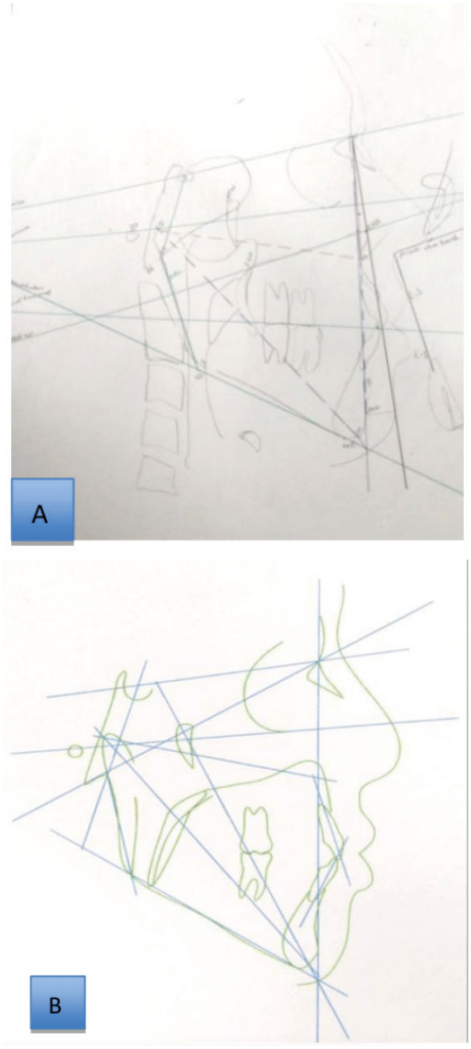

FIGURE 3 Cephalometric tracing, B-Cephalometry

SOURCE: The author

	Value found	Reference value
SKELETAL		
NPerp- A	-3,02	-2 A 2
NPerp- P	-13,34	-4 A 0
ANB	3,46	2 A 4
AFAI	83,73	62-70
FMA		
DENTAL		
1/.NA	13.48	22
1/.-NA	3.81	4
1/.NB	24.38	25
1/NB	7.17	4

Table 1-Cephalometric analysis

SOURCE: The author

With regard to cephalometric features, lower anterior facial height is observed. Decreased NPERP-A demonstrates the retropositioning of the mandible in relation to the skull base. The maxilla, however, is usually slightly retruded in relation to the skull base.

FIGURE4 -Lateral X-ray

SOURCE: The author

The panoramic radiograph showed the presence of all dental units, permanent dentition, missing teeth 18,28,38,48, metal density restoration / esthetics on teeth 16,14,22,24,25, 26,27,37,36,34,46,47.

Coronal radiolucent area compatible with caries on teeth 37M-46M. Apical rounding on teeth 13,12,11,21,22,23,32,31,41,42.

Resorption of alveolar bone ridges.

Maxillary sinuses: symmetrical, well-developed, with bilateral alveolar extension.

- **Functional analysis** - Bruxism, faceting and shortening of the right condyle

TREATMENT OPTIONS

As the patient had previously undergone unsuccessful compensatory treatment, we only had the option of orthognathic surgery or no treatment.

TREATMENT PLAN

- Orthosurgical preparation;
- Orthognathic surgery
- Orthodontic finishing

TREATMENT

Orthosurgical preparation

- Patient reception and planning, facial analysis and anamnesis. Wear of teeth 23 and 13M, 14 and 24, with installation of the upper arch with a self-ligating molar--to-molar appliance using a copper niti 14 wire.
- Recontouring of distal 43 and M 44, distal 33 and mesial 34, use of 3/16 class elastics.
- Use of myobrace large B1, for decompression of the retrodiscal region and activities for lingual and respiratory repositioning.
- Use of 3/16 elastic 18 aditeck upper wire, maintained use of myobrace during treatment, used 14x25 lower term wire, 16x25 upper term wire.
- After 2 months of use, it was 16x25 rectangular lower and upper term.

Orthognathic surgery

- Use of 18x25 upper and 16x25 lower rectangular niti wires and placement 3/16 medium elastics, myobrace exercise guidance.
- Placement was 18x25 lower rectangular and 18x25 upper steel wire, orthognathic surgical evaluation.
- I use 19x25 wire with upper and lower coordinates, 15 to 17 with torque.
- Installation of a hook for orthognathic surgery and coordination of the upper and lower arches.

Orthodontic finishing

- Maintained 18x25 upper and lower wire, extension bend 23,24,25.
- Occlusal adjustment.

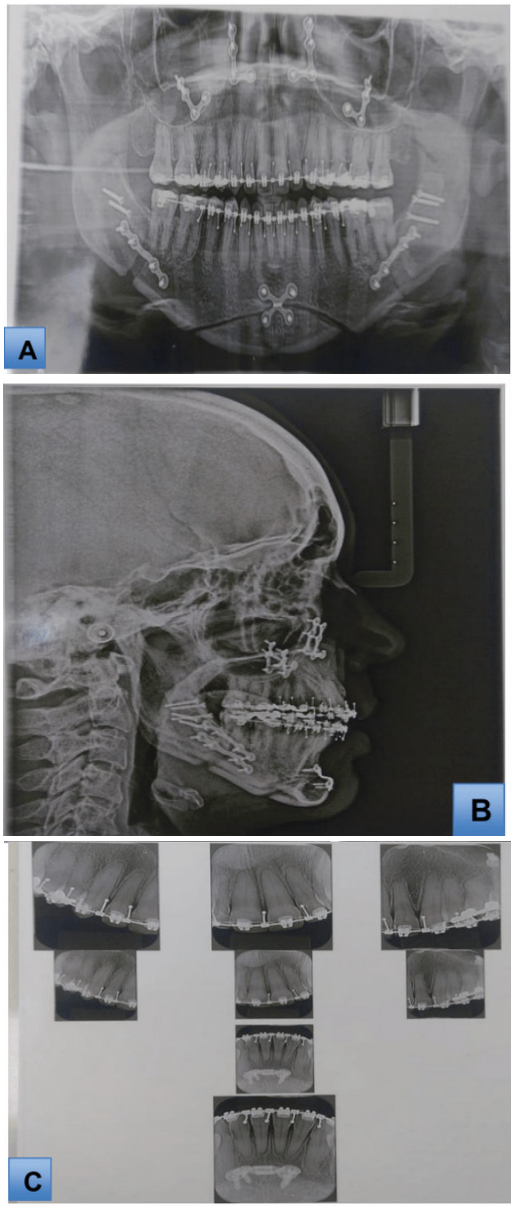

FIGURE 5 -A/B/C Panoramic radiograph after surgery

SOURCE: The author

Analysis of the post-orthognathic surgery panoramic radiograph reveals apical remodeling on teeth 12,1,21,22, 31,32,33, 41,42,43. Absence of teeth 18,28,38,48. Presence of dental calculus and fixed orthodontic appliance.

In addition, osteosynthesis plates and screws were found, associated with bone repositioning, compatible with orthognathic surgery and segmental calcification of the stylohyoid ligament on the left side.

TREATMENT PROGRESS

EXTRABUCAIL

Figure 6-Profileanalysis smiling, B-Frontal analysis, C-Profile

INTRABUCAIL

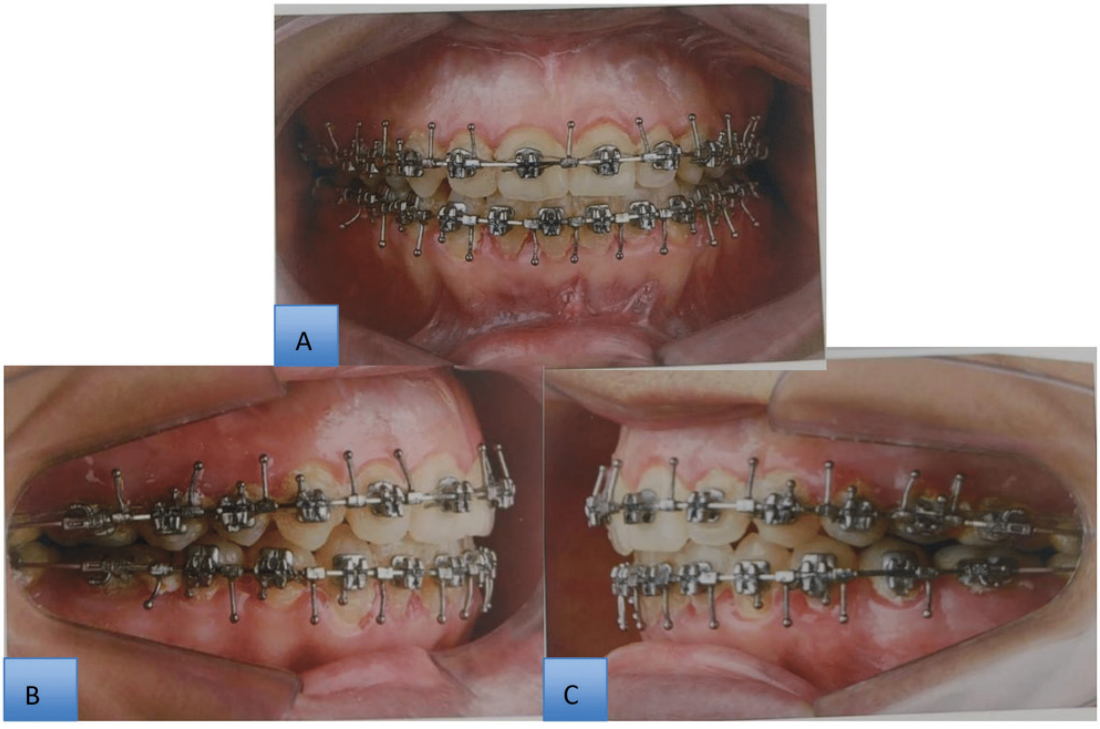

Figure 7-Front, B-Right side, C-Left side

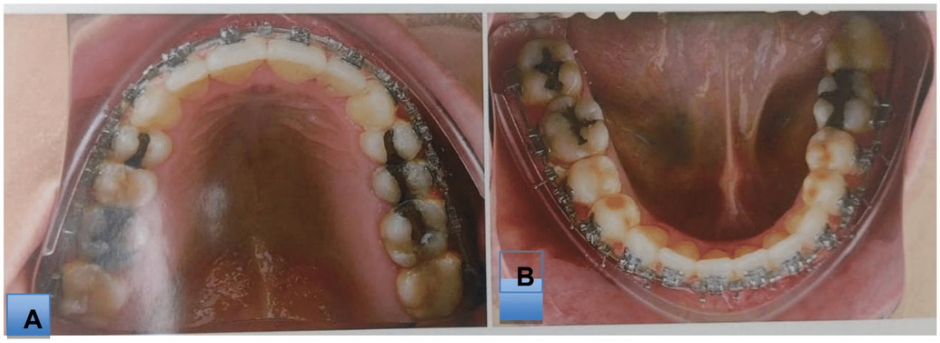

Figure 8 -A-upper arch, B-lower arch

	Value found - Before	Value found- After surgery
Skeletal		
NPerp A	**-3,02**	**6,77**
NPerp P	**-13,34**	**2,81**
ANB	**3,46**	**6,57**
AFAI	**83,73**	**77,51**
Dental		
1/.NA	13.48º	15.019°
1/.-NA	3.81mm	1.604mm
1/.NB	24.38º	29,457°
1/NB	7.17mm	5.041mm

Table 2-Cephalometric analysis before and afterorthognathic surgery

SOURCE: The author

A comparison of the cephalometric findings before and after orthognathic surgery reveals Upper Inc. retrusion and Lower Inc. protrusion.

RESULTS

The treatment promoted passive lip sealing with adequate gingival exposure in the smile and a straight facial profile. Improvement in the position of the mandible and maxilla.

Harmony between the position of the mandible/maxilla, moving from a convex profile to a straight profile.

DISCUSSION

Excessive vertical growth is often associated with a long, narrow face, high mandibular plane angle, open gonial angle, reduced mandibular ramus height, convex profile and short chin-neck line (Sherwood, 2002). The patient described in this clinical case had a convex profile, lower third and gummy smile, facial asymmetry with deviation to the right side and forced lip seal. Excessive vertical dentoalveolar growth causes gingival exposure during smiling, which is the patient's main complaint (CUNHA, 2022).

In this sense, the patient diagnosed with a long face pattern needs a thorough analysis, observing the main complaints and difficulties, as well as coordinating associated treatments, enabling ortho-surgical treatment, aiming for better stability of the bone bases, with a pleasant face and functional occlusion (MARTINS et. al., 2014). In addition, after

diagnosis and assessment of other changes in the maxillomandibular complex, the most suitable treatment for patients diagnosed with skeletal deformities classified as long face pattern is the combination of orthodontic and surgical treatment, since it treats from simple to more serious problems, succeeding in an aesthetic, functional occlusion and desired results (MAMANI, 2013).

Upon completion of treatment, when properly used, it is feasible to use aesthetic procedures to improve the aesthetics of the smile (OLIVEIRA, 2019; SUZUKI et al., 2008). Thus, orthodontic treatment alone is very limited and an orthodontic-surgical procedure is usually the most appropriate option for achieving adequate aesthetics, function and stability (LINDEN, 1999).

The patient in this clinical case had undergone previous orthodontic treatment which, although it achieved satisfactory occlusion, had no impact on lip function or facial and smile aesthetics. In this respect, the patient underwent orthodontic treatment and was referred for orthognathic surgery.

The aim of orthognathic surgery was to move the maxilla and mandible complex, resulting in a healthy, functional profile and position aesthetic. It also resulted in the correct position of the teeth and bone bases, allowing for improved speech, chewing and breathing.

FINAL CONSIDERATIONS

Orthosurgical treatment for patients with vertical growth patterns is an excellent alternative for correcting skeletal disharmony and improving facial and smile aesthetics.

In this case, the surgery had a strong positive impact on the patient's quality of life, as it improved his gingival smile and asymmetry.

Factors that contributed to the patient's improved appearance, increasing her self-esteem.

REFERENCES

Cao Y; Zhou Y; Li Z. Surgical-orthodontic treatment of Class III patients with Long Face problems: A Retrospective Study. ***Journal of Oral and Maxillofacial Surgery***, 2009; 67(5): 1032– 1038.

CARDOSO, M. A.; BERTOZ, F. A.; REIS, S. A. B.; CAPELOZZA FILHO, L. Estudo das características oclusais em portadores de padrão face longa com indicação de tratamento ortodônticocirúrgico. **r dental Press ortodon ortop Facial**, Maringá, v. 7, p. 63-70, 2002.

CARDOSO, M. A.; BERTOZ, F. A.; CAPELOZZA FILHO, L.; REIS, S. A. B. Características cefalométricas do padrão face longa. **Rev. Dental Press Ortodon. Ortop.** Maxilar, Maringá, v. 10, p. 29-42, 2005.

CAPELOZZA FILHO, L. **Diagnóstico em ortodontia** 1. ed. Maringá: Dental Press Editora, 2004.

CAPELOZZA FILHO, L.; REIS, S. A. B.; SCANAVINNI, M. A.; CARDOSO, M. A. Características cefalométricas dos indivíduos padrão I. ***R dental Press ortodon ortop Facial***, Maringá, v.10, n. 1, p. 67-78, jan./fev. 2005.

Cunha TMA, de Souza GMM, Marinho BAL, Leite ALC, Oliva MA. Tratamento orto- cirúrgico de paciente com sorriso gengival e padrão face longa – relato de caso. Orthod. Sci. Pract. 2022; 15(59):40-47.

FERREIRA, C. R. A. **Bráquetes autoligados**: revisão de aspectos clínicos. Especialização em Ortodontia. Instituto de Ciências da Saúde, FUNORTE/SOEBRAS. Brasília, 2014. Disponível em: < 41 http://www.cursospos.com.br/arquivos_biblioteca/c7e159c3214c8504a4d6e1e970fa5 99765d91fa2.pdf>. Acesso em: Novembro 2023.

GIMENEZ CMM; BERTOZ F; GABRIELLI MAC; PEREIRA Filho VA; GARCIA I; Magro Filho O. Cephalometric evaluation of the soft tissue profile in vertical face treated by orthognathic surgery: a retrospective study. ***Revista Dental Press de Ortodontia e Ortopedia Facial.*** 2006; 11(6): 91-103.

LINDEN, P. G. M. van der. The development of long and short faces and their limitations in treatment. ***Rev. Dental Press Ortodon. Ortop. Facial***, Maringá, v. 4, p. 6-11, 1999.

MAMANI, Maribel Hilasaca. **Preparo ortodôntico em casos de cirurgia ortognática.** Monografia (Especialista em Ortodontia) Faculdade de Odontologia de Piracicaba, da Universidade Estadual de Campinas, SP: [s.n.], 2013.

MARTINS, Gregório Antônio Soares et al. Padrão Facial e Indicação de Cirurgia Ortognática. **Rev. Cir. Traumatol. Buco-Maxilo-Fac.**, Camaragibe v.14, n.1, p. 75- 82 , jan./mar. 2014.

OLIVEIRA, C. B. **Aumento de coroa clínica estética para alinhamento do sorriso**: relato de caso. Trabalho de conclusão de curso. Salvador, 2019.

PEÇANHA, L. A. P.; CARVALHO, M. L. C. V. **A importância do tratamento preventivo e interceptativo em ortodontia**. 2022. Disponível em: https://monografias.brasilescola.uol.com.br/medicina/a-importancia- tratamentopreventivo-interceptativo-ortodontia.htm. Acesso em: Novembro 2023

SHERWOOD KH, Burch JG, Thompson WJ. Closing anterior open bites by intruding molars with titanium miniplate anchorage. Am. ***j. orthod. dentofacial orthop***. 2002; 122:593-600

SUZUKI, P. H. et al. Valorizando o sorriso gengival: Relato de caso. **Revista Inpeo de odontologia**, v. 2, n. 2, p. 41-45, 2008.

VELLINI, F. **Ortodontia**: Diagnóstico e planejamento clínico, 7ª ed. São Paulo: Artes Médicas; 2008.