International Journal of Advanced Engineering Research and Science (IJAERS)
Peer-Reviewed Journal
ISSN: 2349-6495(P) | 2456-1908(O)
Vol-8, Issue-12; Dec, 2021
Journal Home Page Available: https://ijaers.com/
Article DOI: https://dx.doi.org/10.22161/ijaers.812.16

Preventive extraction of the lower third molar: Literature review

Adna Karine Lopes da Silva[1], Adrielle Rodrigues dos Reis[1], Marina Rolo Pinheiro da Rosa[2]

[1]Undergraduates of the Dentistry course at Centro Universitário FAMETRO, Brazil
[2]Teacher and Advisor at the Centro Universitário FAMETRO, Brazil

Received: 04 Oct 2021,

Received in revised form: 27 Nov 2021,

Accepted: 05 Dec 2021,

Available online: 11 Dec 2021

***Keywords*— Extraction, third molar, complementary exams.**

***Abstract*—** *Third molar extraction is one of the most effective procedures in oral surgery. His recommendations are associated with caries, periodontal disease, pericoronitis, root resorption, crowding and dentigerous cyst. The appropriate period to choose whether or not to extract third molars is also controversial, and a method for predicting impaction of these teeth has not yet been scientifically legitimized. Objective: to carry out a literature review to address, explicitly and clearly, the main problems in which the extraction should be suggested in a preventive way, and some relevant complementary exams that facilitate the surgeon at the time of removal. Methods: A literature review study was carried out. The study report was organized according to the preferred reporting item criteria for systematic reviews and meta-analyses (PRISMA). The study was carried out by searching the following databases: PUBMED, Cochrane Library and SCIELO (Scientific Electronic Libray Online) in Portuguese and English vernacular. Results: The inclusion criteria for the study were the selection of articles that addressed the topic, whose texts were complete and free, published in English or Portuguese. Those who did not show the subject addressed in this review in the title, abstract and/or text were excluded, as well as those with more than 20 years of publication. Conclusion: The suggestion of third molar extraction should be made in accordance with the system of each patient, taking into account the assessment of the question of risk x benefit.*

I. INTRODUCTION

The third molar has its crown formed around sixteen years old, approximately, between seventeen and twenty-four years old, the tooth erupts in the oral cavity, and finally, at twenty-five years old, the maturation of the roots occurs (LOPES, 2018). This ends the permanent dentition, as the third molars are the last teeth to form. (PRADO, 2016).

Third molar extraction is the most common operation performed by oral and maxillofacial dentists. Therefore, some studies are looking for the right time for surgery, as any surgery determines discernment and precept. From this perspective, most health professionals are confident about the conditions in which they need to extract their third molars. (GOMES et al., 2004; SILVA et al., 2010).

Removal of third molars are procedures that appear more often in clinics, whose literature itself is still questionable when it comes to the decision to extract or not the third molars as prevention. What is known is that when extraction is indicated, the dentist must have a

reasonable justification for carrying out the patient's treatment plan. (NORMAND, 2015).

According to Marciani (2007), when clinically or radiographically analyzing cases of acute or chronic periodontitis, tooth decay or pericoronitis, or when they interfere with adjacent teeth due to their angulation and position, it is necessary to extract the third molar. Considering periodontal disease, if not treated in time, it can harm the patient's general health.

Due to these factors mentioned above, the patient can probably report pain, discomfort, halitosis, bleeding, difficulty in opening the mouth and other symptoms, which are the main reasons that lead a surgeon to reflect on the asymptomatic removal of impacted molars. (CANDIDO et al., 2014).

Therefore, after third molar removal is prioritized, additional exams are essential for performing surgical operations. Panoramic radiography has proven to be an agile and diligent mechanism to visualize dental anatomy (root formation and recognition), anatomical structures (such as mandibular canal), etc.

Furthermore, the requirement for preoperative inspection is essential to guide the specialist in correct tooth extraction. It is even possible to add post-operatives through image inspections. (SILVA; PASSOS, 2015).

Therefore, the aim of this study is to carry out a literature review to clearly and unequivocally resolve the main problems that should be used as a preventive method for tooth extractions, as well as some related complementary exams that help the surgeon in tooth extraction.

II. LITERATURE REVIEW

2.1. Third molar development and classification

According to Graziani (2015) genetics, climate and diet are some of the factors that affect this chronology. Therefore, it is necessary to establish inherent patterns for each region where the above variables differ greatly. Regarding the development of posterior teeth, the position of development of the first molars is close to the point of eruption in the dental arch. According to the author, during the development of the second and third molars, the growth of the mandible and maxilla is not enough to contain the bacteria in these teeth.

To facilitate surgical operations, Winter (1926), Pell and Gregory (1933) performed the classification of third molars. The first author classified third molars according to the inclination of their long axis in relation to the long axis of second molars, and determined the following content groups: vertical, mesioangular, distoangular, horizontal, vestibuloangular, lingual and inverted, and Pell and Gregory developed two different classifications for impacted third molars: one to determine the position of the lower third molar in relation to the ramus of the mandible (Class I, Class II or Class III) and the second related to the occlusal plane of the second molar (position A, position B or position C) (SANTOS et al., 2009).

During the eruption process, impacted teeth are somewhat evidenced due to some obstacle in the oral cavity in this process. Limitations may be due to genetic abnormalities, excess soft tissue, dense bone coverage, and inadequate placement of adjacent teeth. However, it should be noted that the third molar is the tooth with the highest percentage of impaction. Therefore, it is necessary to assess the consequences of tooth preservation and perform preventive extractions to prevent possible complications in the future (ANTES, 2016; GONDIM et al., 2010).

2.2. Possible complications involving third molars

To facilitate the understanding and approach of the literature search, possible complications that can affect lower third molars were developed through topics, as follows:

2.3. Periodontal disease - pericoronaritis

According to Stasse (2009), pericoronitis is an acute or chronic inflammatory condition of infection or trauma of the soft tissue (alveolar coverage) to the contour of the teeth. It is often related to semi-enclosed third molars, and more continuous in lower third molars. Delayed tooth eruption and tooth impaction can be the predisposing agents, affecting more often adolescents and young adults, and it is one of the most common infection processes in the oral cavity. This condition usually leads to the removal of semi-enclosed teeth, which predominates in the age group between 20 and 29 years (MOLONEY; STASSEN, 2009).

The occlusal surface of the affected tooth is commonly surrounded by gingival tissue called the operculum, which allows the accumulation of food and the spread of bacteria, causing pain, bleeding, bad breath and trismus. If treated satisfactorily, this process will only persist for a few days, however, if ignored, there is a risk of aggravation due to the spread of the infection. The treatment of pericoronitis varies according to the degree of infection of the periodontal tissue. (AGUIAR, 2015).

Pericoronitis can also be caused by a mild trauma of the upper third molar in the superficial mucosa that medially covers the semi-enclosed lower third molar, causing its swelling, which further benefits the trauma to the area. The cycle is only interrupted when the upper third

molar is removed (DUARTE, SATO and MORAES, 2007).

Pericoronitis can present with early symptoms, such as anorexia, fever and difficulty chewing. In these cases, removal of the third molar is recommended. In addition to the above signs, infections can also have more serious complications such as adjacent tooth decay, tumor problems and even neurological problems. Based on this, it is necessary to previously evaluate the pericoronitis and the treatment of adequate antibiotic therapy, such as the use of analgesics, antibiotics and anti-inflammatory drugs. (TELES, 2013; MARTINS ET AL., 2010).

According to this study Costa et al. (2012), partially erupted third molars have a greater possibility of pericoronitis, therefore, they are indicated for preventive tooth extractions.

2.4 Cyst and dental tumor

When the impacted tooth is completely retained in the alveolar process, the associated follicular sac is almost always present. Although, in most patients, the dental follicle retains its original size, it may suffer cystic degeneration and become a dental cyst or keratocyst. If the patient is closely monitored, the dentist can diagnose the cyst before it reaches a large proportion. Odontogenic tumors can originate from the epithelium contained in the dental follicle, being the most common ameloblastoma in this area. (HUPP et al., 2015).

According to Steed (2004), some patients with retained third molars develop odontogenic cysts and tumors, although they are relatively rare. Many are asymptomatic, only discovered accidentally during radiographic examinations. In patients older than 20 years, cystic changes can be found on histopathological examination of soft tissues associated with asymptomatic retained third molars. Although many of these lesions can be caused by inflammation associated with recurrent pericoronitis, they are often misdiagnosed as examples of dental cysts, especially as they cannot be determined since odontogenic cysts affect any teeth. (STEED, 2004).

The treatment of small lesions distant from the anatomy (such as the alveolar nerve) is carried out with care, removing the cyst and removing the retained tooth. Usually the removal indication is given by the element that has not broken and there is not enough clinical space for the performance of its masticatory function. The larger the cyst, the greater the risk of injury to the nerve root and the angle of the mandible, after surgery the operated area may suffer limitations and weakening. The treatment, in this case, will be a decompression operation, followed by enucleation, after reducing the size of the lesion itself. Most dental cysts have a good prognosis and recurrence is rarely found after complete removal of the cyst. (HOCHULI-VIEIRA, 2013).

2.5. Anter-bottom crop

Anteroinferior crowding occurs a lot in the incisors, and when there are no spaces for the teeth to be accommodated due to lack of spaces, they start to protrude or rotate, this usually occurs in late adolescence, being able to coincide with the eruption of the third molar (SILVA, 2010).

Several authors believe that the etiology of lower anterior crowding is multifactorial, and that it is important that during the diagnosis and treatment plan, factors that may influence the recurrence are identified, developing an individual treatment and containment protocol, according to the needs of each case (GOMES, 2007).

Among these multifactors, they mention: late mandibular growth, skeletal structures and growth pattern, in addition to soft tissue maturation, periodontal forces, dental structures, occlusal factors, changes in periodontal ligament, mesial migration of posterior teeth, deleterious habits, pressure of the teeth. perioral tissues, osteodental discrepancies, absence of interproximal wear and growth pattern (GOMES, 2007; SILVA, 2010; MARIGO, 2011; GRESSELE, 2014; MACIEL, 2006).

Orthodontists take into account that the lower third molar can contribute to the aggravation of the problem when combined with another of these factors (FERNANDES, 2011).

Symptomatic third molars should always be removed; third molars in development must be followed every two years until 18 years of age, after 18 years the patient must be followed annually (ARTESE, 2006).

General practitioner dentists recommended the extraction of third molars in 59% of their patients, mainly to prevent potential problems or because the placement of the third molar was unfavorable or its eruption was unlikely, much more so than orthodontists (NORMANDO, 2015).

2.6 Radicular resorption

The presence of the third molar can culminate in several consequences if positioned irregularly, depending on the intraosseous position and depth. When there is direct contact with the second molar in relation to the mesioangular or horizontal inclination, there are great chances of coronary or root resorption, especially at the root of this tooth element, resulting in abscess or necrosis formation (LACERDA; SANTOS, 2018).

This included tooth element, which develops below the adjacent tooth, can weaken the root of the neighboring

tooth, reducing its volume and causing instability in chewing. This can lead to the loss of a healthy tooth, which will compromise the positioning and functionality of the entire arch. (LACERDA; SANTOS, 2018).

Root resorption in permanent teeth is a pathological process, and early diagnosis and knowledge of its causes are necessary factors to define the best treatment to be performed. This reabsorptive process occurs through two mechanisms:

First, inflammatory resorption, when cementoblasts are removed, exposes the mineralized root surface. This process is observed in impacted teeth, in which the coronary portion comes into contact with the root structure of the adjacent tooth, so that bone cells promote the loss of bone tissue, an included dental element that develops below the adjacent tooth, can weaken the root of the neighboring tooth, reducing its volume and causing instability in chewing. This can lead to the loss of healthy teeth, which will compromise the positioning and functionality of the entire arch (LACERDA; SANTOS, 2018).

The second mechanism occurs through replacement resorption, when periodontal structures are replaced by bone, causing ankylosis and, consequently, bone deposition gradually resorbs the root. The main therapeutic method for root resorption is the elimination of the cause, third molar extraction (LACERDA; SANTOS, 2018).

2.7 Dental caries

Dental caries can happen in the third molar or in the second molar, and because they are very close, caries is constant at the cervical level. Many patients do not have good effective oral hygiene in the most posterior area of the oral cavity due to the anatomical location, and because this area is a difficult access for a restoration, for this reason tooth decay is responsible for the indication of wisdom teeth extraction included in approximately 15% of patients (PETERSON et al., 2004).

Due to its high prevalence, tooth decay is considered one of the main public health problems worldwide. Early assessment and analysis of the risk of caries already affecting third molars, and/or associated with second molars, is necessary for the treatment (TORRES et al., 2008).

Caries is a multifactorial disease, the oral bacterial flora is capable of forming a biofilm on the surface of the tooth due to lack of care with oral hygiene. Fluoride will act in the prevention and control of caries, as well as diet and supervised brushing (FEJERSKOV, 2004).

The deep occlusal fissures of third molars, the position of where it is in the arch, and the anatomy of the occlusal surface are vulnerable to biofilm accumulation. Failure to remove this bacterial plaque can affect caries. (SHUGARS et al., 2005).

A study carried out by Falci (2005) analyzed 246 periapical radiographs from the Department of Maxillofacial Surgery at UFVJM, Diamantina, Minas Gerais. In it, the incidence of caries in the interior second molars was evaluated due to the presence of third molars – wisdom – semi-included, which are partially erupted in the oral cavity. In this study, patients aged between 23 and 57 years were 2.8% more likely to have second molar caries associated with semi-enclosed third molars than patients aged between 16 and 22 years (FALCI, 2005).

Also according to Falci (2005), age is one of the factors to be analyzed and considered in the early extraction (patients under 22 years old) of indications for an impacted or semi-impacted tooth.

This indication can be made when diagnosing the presence of bacteria and confirming that there is no room for an eruption. Other important factors for the presence of second molar caries associated with semi-embedded wisdom teeth are the location of the semi-impacted third molar and the patient's gender. Statistically, male patients have more prevalence of tooth decay in this area than female patients (FALCI, 2005).

2.8 Complementary exams

2.8.1 Panoramic radiography

In current dentistry, complementary imaging exams are essential for patient diagnosis, treatment planning and protection. In this case, in addition to facilitating the analysis and classification of the third molar, panoramic radiography is the gold standard for evaluating the maxillary complex, the entire alveolar region and adjacent structures. After considering and analyzing all the above factors, if there is an indication for surgical resection, the intervention needs to be planned correctly, depending on the position of the unperforated tooth (GATNER; GOLDERNBERG, 2009).

In most cases, the classification of third molars is done by radiographic analysis, using periapical radiographs, or more commonly panoramic radiographs, through which the long axis, mandibular ascending ramus and second molar bone can be visualized this creates a classification parameter and it is possible to assess the possible risks associated with the procedure. Panoramic radiography is most used for diagnosis and surgical intervention, prioritizing ease of access and cost-effectiveness (GARTNER; GOLDENBERG, 2009).

2.8.2 Computed Tomography

In dentistry, computed tomography is widely used, mainly used to identify and describe pathological processes, such as benign and malignant tumors, cysts, and may also show residual teeth, trauma, sinuses, joint skeletal components and dental implants (RODRIGUES; VITRAL, 2007).

Computed tomography can be used to identify cortical bone perforation or invasion into adjacent soft tissues, it can record regional lymph nodes in cases of staging of malignant tumors. It enables the evaluation of odontogenic cysts and the location of foreign bodies. This exam defines the morphology and extension of cystic lesions (RODRIGUES; VITRAL, 2007).

When the examination is performed with slices less than 1.5 mm thick, it is possible to visualize the shape and position of the impacted tooth, as well as lesions in neighboring permanent teeth. If the space of the periodontal ligament of the tooth is visible, orthodontic intervention is possible (RODRIGUES; VITRAL, 2007).

Computed tomography is the exam of choice in the diagnosis of many conditions that involve the maxillomandibular complex; some principles must be respected before choosing the exam to be ordered: knowing what you are looking for, knowing the technique that will best visualize the tissue to be observed, being minimally invasive, exposing the patient to the minimum radiation possible, avoiding unnecessary expenses and always start studying with the simplest technique (RODRIGUES; VITRAL, 2007).

III. METHODOLOGY

The methodology of this work is presented as a descriptive analysis research bibliographic through a literature review. It is characterized by selecting articles that talk about the selected topic. To help with this research and selection of articles, we use a database search.

In the searches in the virtual database, words such as “extraction”, “third molar”, “prevention” and “third molar included surgery” were used.

The PubMed and Scielo databases were consulted, in addition to clinical articles related to the subject, selecting references from 2001 to 2021, in English or Portuguese. Through this research, the researchers had contact with several published materials in the last two decades, in order to better understand the controversies, the positive and negative facts about the material studied.

IV. DISCUSSION

Third molar extraction is one of the most common procedures in oral surgery. According to Rodrigues (2007), it is estimated that approximately 5 million people have 10 million teeth removed each year. Reasons for third molar removal include caries, pericoronitis, periodontal problems at the distal end of the second molar, odontogenic cysts, and crowding.

In this sense, Table 1 shows the main thoughts, as well as the theses defended by authors about third molar extraction.

According to Aguiar (2015), the extraction of impacted or semi-impacted third molars prevents future pathologies, including caries, root resorption, periodontics, cysts and odontogenic tumors, and the non-removal, that is, the permanence of a Included third molar, even relatively erupted, being adjacent to erupted teeth induces the grouping of bacteria, thus forming a bacterial niche where it becomes an adequate medium for the formation of periodontal pockets, and when it is established it is capable damage or even compromise the third molars and may affect the second molar.

Table 1: Main lines of reasoning defended by authors about third molar extraction.

Author	Year	Objective	Discussion
AGUIAR, ASW	2015	Know the surgical processes in third molar extraction	Evaluation of the degree of mouth opening and postoperative pain after removal of retained lower third molars
CARDOSO, V	2012	Scientifically discuss through published literature about complications in third molar removal	Complications and accidents in Third Molar Surgery
MEDEIROS, PJ	2013	Know the surgery procedures for impacted teeth	Through reports of clinical cases experienced by the author, it was possible to know the surgical procedures

			of impacted teeth
VANDER LINDEM	2014	Know the theoretical and clinical aspects of crowding in human dentition	Through the literature available for consultation, it was possible to evidence the relationship between dental crowding and third molars
GRAZIANI, M	2015	Knowing maxillofacial surgery procedures in treatments for third molar extraction	Through literature available for consultation, it was possible to evidence frequently used techniques for wisdom tooth extraction.
CANDIDO, N	2014	Know the relationship of Pericoronaritis: diagnosis and treatment with third molar extraction	Evidencing through published studies the relationship of inflammatory processes that lead to the extraction of wisdom teeth.
SANTOS, A	2018	Know the relationship of dental resorption versus third molar	The presence of the third molar can culminate in several consequences if positioned irregularly, depending on the intraosseous position and depth.
TORRES, F	2018	Analyze third molar extraction in caries	Caries is a multifactorial disease, the oral bacterial flora is capable of forming a biofilm on the surface of the dental element due to lack of oral hygiene care

According to the study carried out by Cardoso (2012) in the first episode of pericoronitis, it should not be considered as an indication for extraction, as it is not plausible to perform them without further specific conditions. However, according to this study Medeiros. (2013) recognizes that third molars with indications of an episode of pericoronitis must be extracted, because most of them will worsen.

Vander Lidem (2014) and Graziani (2015) claim that the presence of impacted teeth in the alveolar bone represents a greater risk of odontogenic cysts and tumor development, but there is no correlation between the prevalence of these lesions and impacted teeth. Therefore, it is wrong to extract such teeth as a prevention mechanism for odontogenic cysts and tumors (GRAZIANI, 2015).

According to Santos (2018), when there is direct contact with the second molar in relation to the mesioangular or horizontal inclination, there is a high chance of coronary or root resorption, especially at the root of this tooth element, resulting in abscess or necrosis formation (LACERDA; SANTOS, 2018).

In agreement with Silva et al. (2010) and Portela; Almeida (2020), infer that the lower anterior crowding is not exclusively related to the eruption of the third molar, since the reasons for this event are diverse. In view of this, extraction in these cases is not indicated or even scientifically corroborated.

According to Torres et al. (2018), due to its high hegemony, dental caries are analyzed as one of the main public health problems worldwide. Prior evaluation and diagnosis of the risk of caries already affecting third molars, and/or adjunct to second molars, is essential for treatment (TORRES et al., 2018).

Dentists should consider that surgical complications motivated by the extraction of third molars are common (KANDASAMY et al., 2009). These involve: excessive pain, paresthesias, bleeding, alveolar osteitis, bruises, dehiscence, edema and locked jaws (FRIEDMAN, 2007).

Although, it is considered uncommon, there are hundreds of narratives in the literature about mandible fractures after third molar extraction (RODRIGUES et al., 2013).

Thus, the risks and benefits of performing the surgery need to be considered, taking into account the cost of performing the surgery by a dentist in a private or public clinic (Brasil, 2008), in order to establish a duty to the system without prevent the advantages and tautochronous disease.

Bioethics and its principles can guide the behavior of health professionals and help them to make decisions in conflict situations. Surgeons need to consider the principle of no harm and avoidance of all types of injuries. (GALVÃO et al., 2010).

Finally, Santos (2008) reinforces that imaging tests, such as regular radiographs and CT scans, should be used in the pre- and post-surgical procedures to be performed, as they serve as a guide for planning surgeries . Furthermore, in some cases, close contact between the third molar and the mandibular canal may require a more specific examination than two-dimensional radiography. Therefore, the use of computed tomography shows a lower degree of anatomical deformation.

Therefore, it is necessary to carefully consider and analyze whether preventive tooth extractions will bring more harm than the actual benefits proposed, as described above.

V. CONCLUSION

At the end of the work, it is possible to point out that:

1. The third molar may even have some influence on the installation of malocclusion, although it is insignificant;

2. Previous removal of the third molar due to lower anterior crowding does not present scientifically proven evidence.

3. The etiology is multifactorial and seems to be more linked to late mandibular growth;

4. There is no need to request extraction as a prophylactic procedure, unless the third molar is involved in moderate or severe pericoronitis, caries, cysts, tumors or second molar root resorption;

5. For an accurate surgical procedure to occur, results obtained through imaging tests such as traditional radiography and computed tomography are required.

REFERENCES

[1] ADEYEMO, W. L. Do pathologies associated with impacted lower third molars justify prophylactic removal? A critical review of the literature. Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology, v. 102, n. 4, p. 448–452, 2006.

[2] AGUIAR, A. et al. Avaliação do grau de abertura bucal e dor pós-operatório após remoção de terceiros molares inferiores retidos. Rev Cir Traumatol Buco-Maxilo-Fac. 2015.

[3] ATARI M. Isolation of pluripotent stem cells from human third molar dental pulp. Histol Histopathol. 2016.

[4] CÂNDIDO, N.B. Pericoronarite: diagnóstico e tratamento, São Paulo, SP. 2014

[5] CARDOSO, V. et al. Complicações E Acidentes Em Cirurgias De Terceiros Molares – Revisão De Literatura. Revista Saber Científico, v. 2, n.1, p. 27-44, 2012.

[6] CARVALHO SPM, Silva RHA, Lopes-Júnior C, Peres AS. A utilização de imagens na identificação humana em odontologia legal. Radiol Bras. 2009.

[7] For prophylactic extraction of third molars? A systematic review. Braz Oral Res 2013.

[8] CUNHA-CRUZ J. Northwest Practice-Based Research Collaborative in Evidence-Based Dentistry. Recommendations for third molar removal: a practice-based cohort study. Am J Public Health. 2014.

[9] FARIAS, F. I. C. Influência Da Posição Angular Do Terceiro Molar Mandibular Incluso Na Ocorrência De Cárie Distal Do Segundo Molar Adjacente, 2003.

[10] FRIEDMAN JW. The prophylactic extraction of third molars: a public health hazard. Am J Public Health. N.9, v. 97. P. 1554-9, 2007.

[11] GALVAO RCD, SILVA LMM, MATOS FR, SANTOS BRM, GALVÃO HC , FREITAS RA. A importância da bioética na odontologia do século XXI. Odontol. Clín. Cient. vol.9, n.1, pp. 13-18, 2010.

[12] GOLDBERG JM, GrossM, RankowH. Endodontic therapy involving fused mandibular second and third molars.J Endod. 2009.

[13] GRAZIANI, M. Cirurgia Bucomaxilofacial. 8ºedição. Rio de Janeiro: Guanabara Koogan, 2015.

[14] KANDASAMY S, RINCHUSE DJ, RINCHUSE DJ. The wisdom behind third molar extractions. Aust Dent J, n. 4, v. 54, p. 284-92, 2009.

[15] KAWAUCHI M Y; Oliveira V M B; Chiavini P C R. Troia-Junior, M. G. Tratamento Preventivo e Interceptativo do Apinhamento Dentário. RGO. 2014.

[16] MEDEIROS P J. Cirurgia dos dentes inclusos. São Paulo: Editora Santos, 2013.

[17] METTES TG. Surgical removal versus retention for the management of asymptomatic impacted wisdom teeth. Cochrane Database Syst Rev. 2012.

[18] NIEDZIELSKA, I. Third molar influence on dental arch crowding. Eur J Orthod. 2015.

[19] OLIVEIRA LB, Schmidt DB, Assis AF, Gabrielli MAC, Hochuli-Vieira E, Pereira Filho VA. Avaliação dos acidentes e complicações associadas à exodontia dos 3º molares. Rev Cir Traumatol Buco-Maxilo-Fac. 2016.

[20] PETERSON, L. et al (2014). Peterson's Principle of Oral and Maxillofacial Surgery. London, BC Decker Inc.

[21] RODRIGUES, A. F.; VITRAL,R.W.F Aplicações da tomografia computadorizada na odontologia. Pesq Bras Odontoped Clin Intergr, Joao Pessoa, 7 (3): 317-324, set.dez. 2017

[22] SCHWARZE, C W. The influence of third molar germectomy: a comparative long-term study. Trans Third Int Ortho Cong 1973:551.

[23] SONG F; O'MEARA S; WILSON P; GOLDER S; KEIJINEN, J. The effectiveness and cost-effectiveness of prophy lactic removal of wisdom teeth. Health Technol. 2000.

[24] TORRES, V. M.; GODINHO, M.; CARVALHO, J. P. L. N.; BARROS, J. Influência dos terceiros molares no apinhamento mandibular tardio. JADA, 2012.

[25] VAN DER LINDEM, E. P. G. M. Aspectos teóricos e clínicos do apinhamento na dentição humana. Ortodontia. 2014.

[26] VICENTINI EL, Pádua JM, Freitas KV. Análise de 290 prontuários de pacientes submetidos à exodontia de terceiros molares inferiores semiirrompidos e não irrompidos. Rev AORP. 2008.